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A general guide to organizing and conducting reliable and useful community surveys is reported. Organization for the survey involves identifying and contacting relevant community groups, and meeting with organizational representatives. Constructing a questionnaire involves careful wording and ordering of questions, and determining if questions should be structured or unstructured. Methods of sampling, distributing and collecting questionnaires, and interpreting and using survey results are also discussed. The appendixes include examples of questions used in community surveys, and statistical tools that may be used in analyzing the survey. [Not available in hardcopy due to marginal legibility of original document.] (pt)

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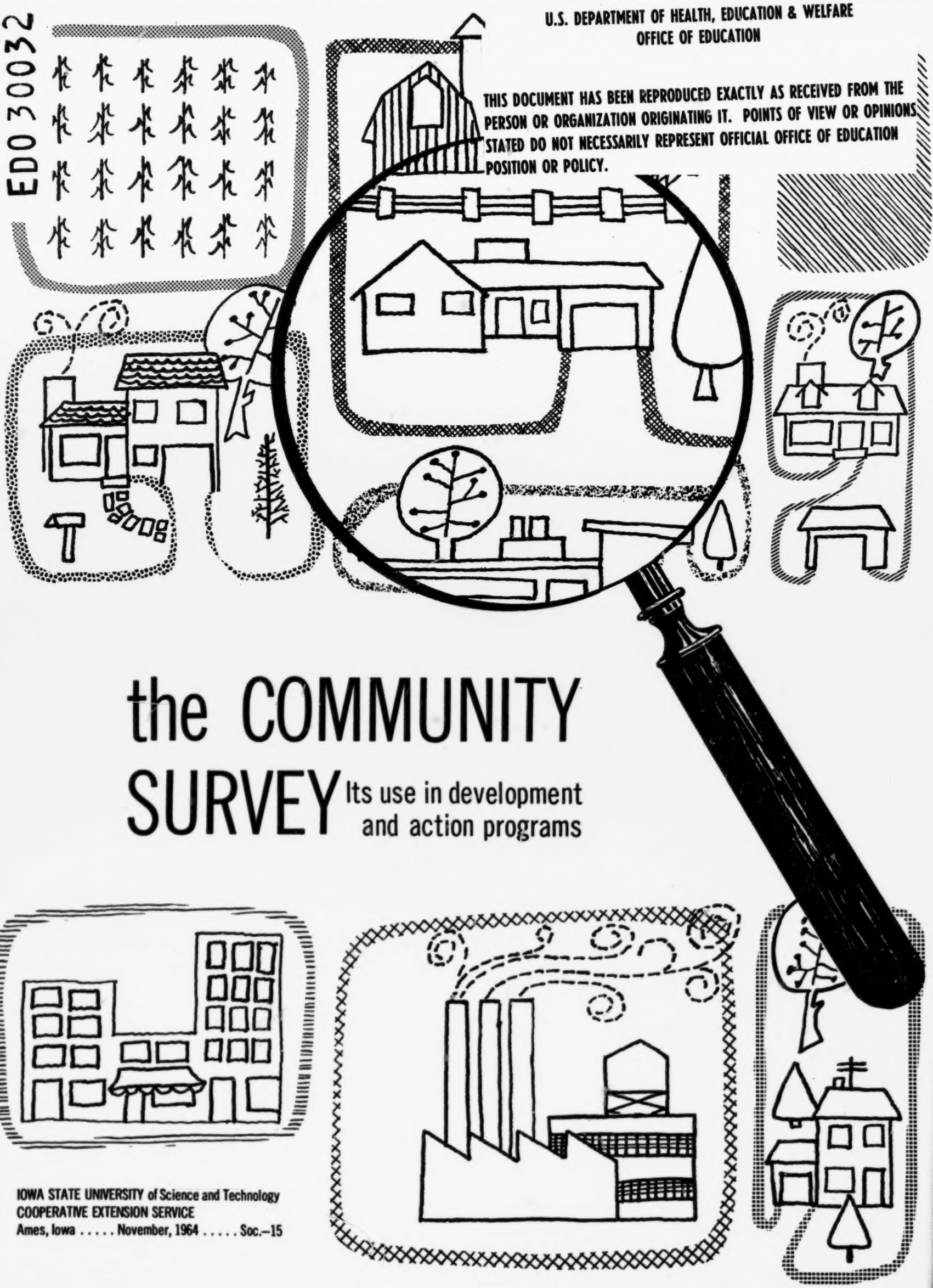

the COMMUNITY SURVEY

Its use in development and action programs

IOWA STATE UNIVERSITY of Science and Technology
COOPERATIVE EXTENSION SERVICE
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CHAPTER ONE

Community Surveys

The survey has become a popular technique for gathering information needed to make decisions. It is used by large corporations, political candidates and research workers alike. The scale of a survey may range from a small locality to an entire nation. The purpose of a survey may be as specific as determining how people prefer to eat breakfast food; or as general as determining the opinions of people regarding a vast array of social, economic, religious and political issues. Finally, a survey may range from asking the opinions of the first five people met on the street to an elaborately designed study with detailed questionnaires, trained interviewers and carefully controlled sampling of respondents.

The typical "community" survey is usually aimed at some "mid point" of these dimensions. In scale, it often seeks the response of people living in one or more towns and the surrounding rural area. In purpose, the community survey is often directed to gathering information which will indicate the opinions and attitudes of people regarding community concerns such as educational facilities, community facilities and services. Another common purpose of a community survey is to determine where people purchase retail goods, go to school and/or meet their recreational needs.

The method of community surveying outlined in this publication is expected to be fairly reliable but less costly than elaborately designed studies.

This publication is for the use of community groups interested in doing the type of community surveys suggested above. It is intended as a general guide which will enable the user to organize and complete a survey which will be reliable and useful in guiding community projects. It is not possible to discuss every particular problem that may arise in community surveys. Therefore, we suggest you check your sampling plans and questionnaire with a specialist prior to distributing the questionnaire. Individuals or groups interested in intensive or depth research should seek expert advice. Likewise, community groups interested in surveys for specific purposes other than those discussed in this publication should seek professional assistance.

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CHAPTER TWO

Organizing for a Community Survey

Effective organization is the key to most successful community surveys. The elements common to organizing for community projects, such as building a swimming pool or conducting a house-to-house fund raising campaign, are also common to organizing for a community survey.

Good surveys require hours of work. It is a good plan for communities undertaking surveys to have some committee or organization interested in community service work take the major responsibility or sponsorship.

Once a sponsoring group has been identified, the following steps should be considered if the community group which initiates or sponsors a survey wants to insure community-wide cooperation and participation before, during and after the survey is completed.

STEP ONE -- Identify community groups.

It is important to involve key leaders and members of relevant community groups from the beginning. However, you do not need to involve every group in a community survey except in unusual cases. Following are some criteria for finding out which groups are most relevant:

** Consider asking those groups or organizations which might furnish volunteer interviewers, meeting facilities and/or clerical assistance.

** If the sponsoring group wanted to include a rural sample in the community survey, farm organizations (men and women), youth groups and/or other rural organizations might be relevant groups.

** Newspapers and radio and TV stations would be relevant groups since they may be asked to assist with survey publicity.

** Include groups and organizations that would be expected to act on the results of the survey. Organizations, like individuals, are more inclined to do something if involved from the beginning. The school board, for instance, is more likely to be receptive to suggestions if it "gets in on the ground floor" and has a hand in determining survey questions.

** Groups or organizations to which the potential interview respondents belong should be considered. Complete adherence to this criterion would suggest that every group is relevant. A more common sense use is intended. For example, if the survey is aimed at high school students, the school becomes relevant because its cooperation may allow the survey to be filled out at school, thereby reducing the cost of the survey in

time and money. Or, to cite another example, if a majority of the people asked to fill out the questionnaire belong to one particular group, that group's participation will enhance the chances of good cooperation of respondents.

Many of the same groups and organizations will be identified for all criteria. This is an advantage and points out the need to identify the relevant groups early in the organizing process. (More reasons for identifying the groups which meet the above criteria will be discussed in the chapters on questionnaire construction and methods of surveying.)

STEP TWO -- Contact relevant groups.

Contact key persons in the groups identified in STEP ONE to explain the proposed survey and to solicit cooperation. It is important that the survey sponsors have an open mind at this point and have not yet decided all the details of the survey or even the general question areas. The involvement of other groups must be more than a "rubber stamp function" if it is to accomplish its purpose. The objective of this step is to get a commitment from each relevant group to have a person -- or persons -- attend a meeting to explore the possible question areas, method and timing and other mechanics of the survey.

There should be a "time lag" between contacting key persons and final survey decisions. This allows the key persons to "check" with the group they represent on suggestions for the survey, the amount of support they wish to commit and/or concerns they wish to express.

STEP THREE -- Hold a meeting of organizational representatives.

This meeting is an important step in the survey process. The persons attending need to develop a mutual understanding of the purpose(s) of the survey, the means by which it will be accomplished and the responsibilities of the various groups at the planning, execution and follow-up stages of the survey. The following general agenda is suggested for the first meeting. The number of questions raised, extent of discussion and time available will guide the meeting planners in determining whether all of this can be done in a single meeting.

Suggested Agenda

1. Who's here? Introduce people, giving name and organization represented.

2. The background. Explain the origin of the survey idea and what has been done up to now.

3. An outline of proposed survey steps. This should include the method of developing the questionnaire, how it will be distributed, the people who will be interviewed, the means of analysis, the expected use of results, the time schedule, volunteer help needed and costs involved.

4. Discussion. At this point, the group should be permitted to raise questions and offer suggestions. This publication is designed to

assist the sponsoring group in answering many of the questions which will be raised.

5. Decision. Following the discussion, and dependent upon the general consensus, the total group should be asked to commit itself to the survey. It may be necessary for some representatives to go back to their group before they can commit resources to the survey. A good explanation to the contact person at STEP TWO, along with the suggested "time lag," will reduce this problem at this stage. Keep in mind that people will not obligate themselves to do something unless they clearly understand the purpose, the means and the extent of their responsibility. For this reason, points 3 and 4 of this suggested agenda are particularly important.

The remaining steps are treated in the following chapters.

STEP FOUR	Constructing the Questionnaire
STEP FIVE	Sampling Procedure
STEP SIX	Distributing and Collecting Questionnaires
STEP SEVEN	Interpreting Survey Results
STEP EIGHT	Using Results

CHAPTER THREE

Constructing the Questionnaire

Constructing a survey questionnaire which will accomplish the objectives desired is perhaps the most time-consuming step in the survey process. Among points to be considered:

1. The process used to identify and select ideas or topics for questions.

2. The form in which questions should be asked to obtain best results.

3. The length and scope of the questionnaire.

Although the objectives of a survey may be the same for different communities, for example, to determine the attitudes of the public toward various community services and issues, it is quite probable that the facilities and issues will vary from community to community. Therefore, each community needs to determine for itself the most appropriate kinds of questions for that community.

Getting Ideas for Questions

In the process of deciding which topical areas should be included in a community survey, the sponsoring group should seek ideas for questions from various key people in the community. Some communities have found it useful to hold a meeting of community leaders to explain the planned survey and at the same time secure ideas for questions to be included. Such a meeting could include representatives from churches, schools, city government, business organizations, industrial development, recreation commissions or boards, women's clubs, youth groups, etc. Usually, such a meeting stirs up enthusiasm and support for the survey project. This support can be of benefit in getting the project completed and making use of the results when the survey has been completed.

However, it is not always necessary to hold a community meeting to obtain ideas for questions and support for the project. Many communities have accomplished the same purpose by asking various community leaders to submit ideas for questions. The persons asked to submit ideas will vary with the objective of the survey. If a retail trade survey is planned, ask only retailers and businessmen to submit ideas. However, if a community-wide attitude survey is planned, then ministers, the school superintendent, the mayor or councilmen, businessmen, recreation leaders, etc., would probably all be invited to submit questions. When asking people to submit ideas for questions, explain the purpose and objectives of the survey at the same time. This will provide them with a frame of reference for preparing ideas for questions as well as developing support for the project.

After ideas for questions have been submitted, you may have many more questions than could be included in a questionnaire and which could be answered by a person in a reasonable amount of time. So when leaders are asked to submit ideas for questions, also ask them to rank their ideas in order of their importance.

This information will be used as a guideline in deciding which of the many questions submitted will actually be included in the questionnaire. (Some guidelines for deciding on the length and scope of the questionnaire will be presented later in this section.)

Wording Questionnaires

The next task is to translate the ideas into a question form which will effectively measure the opinions or attitudes of people. This is not a difficult task if you keep a few basic points in mind. Questions included in a survey should:

1. Be simple, clearly stated and easy to answer.

2. Contain only one major idea.

3. Be as short as possible and still communicate the idea.

4. Should not be stated in such a way that a particular answer is implied by the question.

Questions should be simple and convey only one idea. Long, involved questions tend to confuse the person completing the questionnaire, and he may place a different interpretation on the question than intended. The following is an illustration of the kind of double-barreled question to avoid:

> To improve the parking situation, parking meters should be installed on Main Street and businessmen should be prohibited from parking on Main Street.
>
> _____ Yes _____ No _____ Don't Know

Regardless of how a person answers this question, it is not certain how he feels about parking meters. He may favor parking meters, but oppose prohibiting businessmen from parking on Main Street. He could answer the question either "yes" or "no"; but in either case, you still would not know how he felt about either question. The simple solution to this problem is to make two questions out of the example question.

It is usually desirable to include as a part of the question the reason why a change should be made. In the example, the introductory phrase -- "to improve the parking situation" -- was added to indicate why parking meters might be installed or why businessmen should be prevented from parking on Main Street. To merely state the question, "businessmen should be prohibited from parking on Main Street," might result in a different reaction than qualifying the question by indicating why such a move might be made. This results in the respondent reacting to the statement as a method of solving a parking problem and not as a reaction for or against businessmen.

Avoid "loaded" questions or those which either cannot be answered simply or which seem to call for a particular response. The following are examples:

When did you stop beating your wife?

You do approve of spanking children, don't you?

The first question cannot be answered. The second question practically begs for a "yes" answer.

To aid in constructing a questionnaire, Appendix A includes a topical listing of some acceptable questions which have been asked in several community surveys. The questions are not perfect, but have been asked a number of times with apparently good results.

Structured and Unstructured Questions

The style or form of questions is probably as important as the way questions are worded. Generally, questions included in a questionnaire can be categorized as "structured" or "unstructured." A structured question is one with several possible answers -- the respondent simply checks the choice he thinks is the best answer. The major advantage of structured questions:

1. They are easy to answer and require little time. Returns on questionnaires using structured questions are higher than when unstructured questions are used.

2. Structured questions are easy to tabulate and analyze. Tabulation consists simply of determining the number of respondents checking each answer listed on the questionnaire.

The main disadvantage of the structured question is that you "force" the respondent to select one of your answers. You may miss valuable information.

Following are examples of structured questions:

To improve the parking situation in Center City, would you favor installing parking meters on Main Street?

_____ Yes _____ No _____ Don't Know

Which of the following do you feel would be the best method of solving the parking problem in Center City? (Check one)

_____ a. Install parking meters.

_____ b. Prohibit businessmen from parking on Main Street.

_____ c. Construct a new parking lot.

_____ d. Change from parallel to diagonal parking.

_____ e. Other suggestions: _____

_____

The unstructured question is one in which the respondent is asked a direct question and is expected to write his answer to the question. This kind of question can be used most profitably when you want any or all suggestions. Following are some examples of unstructured or "open-end" questions:

What do you think should be done to improve parking on Main Street?

_____

_____

What would you do to make Center City a better place to live?

_____

The major disadvantages of unstructured questions are the opposite of the major advantages listed for the structured questions:

1. Unstructured questions require more thought and time for the respondent to answer. Consequently, the completion rate on unstructured questions is inclined to be lower than for structured questions.

2. Tabulating responses to unstructured questions can be very difficult and time-consuming. In addition, it is important to have persons with some skill in interpreting free response questions assist in the coding and analysis of the questions if the main findings are to be extracted from the mass of responses.

Thus, for most community surveys, most of the questions included in the questionnaire should be structured.

It is often desirable, however, to include one or two unstructured questions near the end of a community survey to give the respondent an opportunity to suggest improvements or offer opinions not specifically requested in the main part of the questionnaire. In addition, quite often improvements are suggested and complaints raised which had been overlooked completely by the planners and designers of the survey.

Ordering Questions

Not only is it important to carefully word questions, but the order or arrangement of questions can insure obtaining better and more complete answers. Important considerations in ordering questions:

1. The first few items should be easy to answer, attention-getting and non-controversial.

2. Questions pertaining to the same subject matter should be grouped together to avoid jumping from one train of thought to another.

3. Questions involving more thought and/or asking for more personal information should be located in the middle or toward the end of a questionnaire.

4. Questions which use the same form or style of questioning (such as those requiring "yes", "no" or "don't know" answers) should be grouped together as much as possible.

The respondent should feel that the progression of questions is natural and that there is an easy transition from subject to subject.

While it is desirable to obtain answers to as many relevant questions as possible, remember that any questionnaire must be limited in length and scope. As a rule of thumb, it should not take the respondent more than 30 minutes to complete the questionnaire. This is equivalent to about 5 to 6 typewritten pages of rather easily-answered questions.

It is a well supported generalization that the longer the questionnaire, the lower the rate of return and the less complete the questionnaires returned. After an effort has been made to obtain ideas for questions, it will usually be necessary to cut down the number of questions to fit the time limit (30 minutes) for completing the questionnaire. To decide which questions to include and which to omit, ask persons who submit ideas to rank their questions in order of importance to them. Then only the questions having the highest priority will be included in the final form.

Since a questionnaire should be limited to 5 to 6 typewritten pages, it is not possible to make the same survey fit a wide range of objectives. Therefore, a survey should be rather restricted in its purpose. If the main purpose is a "retail trade" survey, then it is best to limit the questions to that particular topical area rather than try to complete an "attitude, retail trade and labor availability" survey all in the same questionnaire. Chances are a "catch-all" questionnaire will not satisfactorily achieve any of your objectives.

Respondent Characteristics

In most community surveys, it is desirable not only to have a general expression of opinion, but also to be able to show "what kind of person" was for or against a particular issue. For this reason, include a few questions designed to determine some personal and/or social characteristics of the persons completing the questionnaires. Try to determine the respondent's age, place of residence (rural or urban) and income. Other questions such as occupation and family size could be included if warranted by the objectives of the survey.

Structured questions usually bring out the best answers. For example, it is usually sufficient to know if a person is "over 65". It is seldom necessary to know his exact age. (Examples are included in Appendix A. How this information can be used in the analysis of results is discussed further in Chapter 6.)

Pre-Testing the Questionnaire

Although the planners and designers of the survey have carefully prepared

the questions and designed the questionnaire, there is always a chance that some questions will be interpreted differently than the designers intended. For this reason, it is important to pre-test a questionnaire.

Have a few persons (say 20-30) complete the questionnaire and note problems in interpretation. If an organization such as a service club, church or Chamber of Commerce is sponsoring the survey, you can pre-test by asking a group of members to complete the questionnaire and to note any problems encountered. On the basis of the pre-test answers, questions may be dropped or modified if:

1. Everybody answers the question the same way, such as all "yes" or all "no".

2. There is an excessively high percentage of "don't know" or incomplete answers.

3. Persons completing the pre-test questionnaire say some questions are difficult to interpret in their present form.

On the basis of the pre-test results, you may want to discard some questions and modify others before preparing the final form for distribution in the community.

Summary

The principal points to consider when constructing a questionnaire:

1. Involve leaders in developing ideas for questions.

2. Prepare simple, easily understood questions involving only one idea.

3. To facilitate both answering and analyzing, surveys should include mostly structured questions.

4. Questions on a similar topic and of a similar form should be grouped together. The questionnaire should begin with easy-to-answer, non-controversial questions.

5. If possible, the questionnaire should be pre-tested on a group of people to "de-bug" it before actual use.

A carefully constructed questionnaire can yield good information. A poorly constructed or ambiguous questionnaire yields little or no information.

CHAPTER FOUR

Sampling

Reasons for Sampling

One method of determining the attitudes or shopping behavior of a particular group of people is to include every member of the group in the study. If a church leader, for example, wishes to obtain the opinion of his parishioners concerning a certain question, he would get the most accurate reflection of opinion by polling each member of the parish. A study of all the members of a group the size of a church usually does not pose serious problems. However, as the size of the population (the group to be studied) increases, it becomes impractical, if not impossible, to include every member of the population in the study. A census (complete coverage) of an entire city and/or county would be very expensive and time-consuming. If the total cost of such a study were calculated and weighed against the benefits of the study, the idea would probably be dropped. Fortunately, the analysis of a small but carefully selected sample or portion of the total population will yield information almost as accurate as if the entire population had been studied.

Therefore, the purpose of studying a sample is to obtain accurate and precise information at a minimum cost of time and money.

Methods of Sample Selection

The two basic methods of sample selection are random selection and arbitrary selection. Examples of arbitrary selection include sidewalk interviewing, giving a questionnaire to each person entering the county court house, or permitting the interviewer to select the persons he wishes to interview. The basic problem of arbitrary selection is that only certain types of people tend to be on the sidewalk or in the court house at interview time, or the interviewer tends to select those persons who are easiest to interview. This kind of selection is proper if you are interested only in the people on the sidewalk or in the court house. However, if you are interested in a sample of the entire population, results from an arbitrary sample are likely to be biased or unreliable.

The essential feature of random selection is that every member of the population has an equal or known chance of being included in the sample. Some type of random sample should be utilized if survey results are to be representative of the population and if you want to measure the precision of the results. However, the rules for obtaining a random sample must be followed closely by the sampler if he wants to obtain unbiased estimates of the population.

There are several different types of random samples. The best type to use depends on the sampling problem. The following methods may be used to draw a town sample and a rural sample for a community attitude or trade area

survey. It is a good idea to have your sampling procedures checked by sampling authorities, such as those at your university or college.

The basic unit to study in a trade area or attitude survey is the household. A household is a person or group of persons occupying a dwelling unit. Thus, in our sampling procedure, we will be selecting a sample of households from all of the households in the area we wish to study.

Drawing the Sample

The first step in drawing a sample is to define the area to be studied. The exact area to be studied depends on the purpose of the survey. In a trade area survey, for example, the survey should probably include that area from which the town of interest could reasonably expect to draw customers. The study might also include the town itself. However, if time and money are very limited, it is probably more important to study the rural areas and outlying towns than to study the center city, since the center city residents tend to be "captive customers."

Drawing the Town Sample */

A recommended procedure for drawing a sample of town households is to use a list of addresses of all households in the town. The interviewer needs the addresses to find the households. The list can usually be obtained from a city directory, a city plat map or from the city clerk or the local gas or electric company.

Commercial or professional establishments, schools, churches and other institutions should be eliminated from the list. The remaining addresses (households) should be numbered consecutively, beginning at 0001 and ending with the last household. If there were a total of 1,995 households, then the households would be numbered from 0001 to 1,995. A sample of households can then be selected from this list on the basis of numbers drawn from a table of random numbers. (See table 1.)

An illustration will show how to use this table. Assume you wish to draw a sample of 370 households from a numbered list containing 5,000 households. It doesn't make any difference where you start in this table, so select any point at random on the table and, reading down the column, mark off 370 successive 4-digit numbers between 0001 and 5,000. When you reach the bottom of the table, start a new set of 4-digit numbers by shifting one column to the right.

Then select those addresses from the list of households whose numbers correspond to each of the 4-digit numbers taken from the table of random numbers. If the same number is drawn from the table twice, ignore the repetition and add another number to the list of 370 successive 4-digit numbers. If a number larger than 5,000 is selected, it is also ignored and another number is selected from the table. Continue this procedure until 370 households are selected from the list.

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*/ The terms "city" and "town" are used interchangeably.

TABLE 1 *

TEN THOUSAND RANDOMLY ASSORTED DIGITS

	00–04	05–09	10–14	15–19	20–24	25–29	30–34	35–39	40–44	45–49	50–54	55–59	60–64	65–69	70–74	75–79	80–84	85–89	90–94	95–99
00	54463	22662	65905	70639	79365	67382	29085	69831	47058	08186	59391	58030	52098	82718	87024	82848	04190	96574	90464	29065
01	15389	85205	18850	39226	42249	90669	96325	23248	60933	26927	99567	76364	77204	04615	27062	96621	43918	01896	83991	51141
02	85941	40756	82414	02015	13858	78030	16269	65978	01385	15345	10363	97518	51400	25670	98342	61891	27101	37855	06235	33316
03	61149	69440	11286	88218	58925	03638	52862	62733	33451	77455	86859	19558	64432	16706	99612	59798	32803	67708	15297	28612
04	05219	81619	10651	67079	92511	59888	84502	72095	83463	75577	11258	24591	36863	55368	31721	94335	34936	02566	80972	08188
05	41417	98326	87719	92294	46614	50948	64886	20002	97365	30976	95068	88628	35911	14530	33020	80428	39936	31855	34334	64865
06	28357	94070	20652	35774	16249	75019	21145	05217	47286	76305	54463	47237	73800	91017	36239	71824	83671	39892	60518	37092
07	17783	00015	10806	83091	91530	36466	39981	62481	49177	75779	16874	62677	57412	13215	31389	62233	80827	73917	82802	84420
08	40950	84820	29881	85966	62800	70326	84740	62660	77379	90279	92494	63157	76593	91316	03505	72389	96363	52887	01087	66091
09	82995	64157	66164	41180	10089	41757	78258	96488	88629	37231	15669	56689	35682	40844	53256	81872	35213	09840	34471	74441
10	96754	17676	55659	44105	47361	34833	86679	23930	53249	27083	99116	75486	84989	23476	52967	67104	39495	39100	17217	74073
11	34357	88040	53364	71726	45690	66334	60332	22554	90600	71113	15696	10703	65178	90637	63110	17622	53988	71087	84148	11670
12	06318	37403	49927	57715	50423	67372	63116	48888	21505	80182	97720	15369	51269	69620	03388	13699	33423	67453	43269	56720
13	62111	52820	07243	79931	89292	84767	85693	73947	22278	11551	11666	13841	71681	98000	35979	39719	81899	07449	47985	46967
14	47534	09243	67879	00544	23410	12740	02540	54440	32949	13491	71628	73130	78783	75691	41632	09847	61547	18707	85489	69944
15	98614	75993	84460	62846	59844	14922	48730	73443	48167	34770	40501	51089	99943	91843	41995	88931	73631	69361	05375	15417
16	24856	03648	44898	09351	98795	18644	39765	71058	90368	44104	22518	55576	98215	82068	10798	86211	36584	67466	69373	40054
17	96887	12479	80621	66223	86085	78285	02432	53342	42846	94771	75112	30485	62173	02132	14878	92879	22281	16783	86352	00077
18	90801	21472	42815	77408	37390	76766	52615	32141	30268	18106	80327	02671	98191	84342	90813	49268	95441	15496	20168	09271
19	55165	77312	83666	36028	28420	70219	81369	41943	47366	41067	60251	45548	02146	05597	48228	81366	34598	72856	66762	17002
20	75884	12952	84318	95108	72305	64620	91318	89672	45375	85436	57430	82270	10421	05540	43648	75888	66049	21511	47676	33444
21	16777	37116	58550	42958	21460	43910	01175	87894	81378	10620	73528	39559	34434	88596	54086	71693	43132	14414	79949	85193
22	46230	43877	80207	88877	89380	32992	91380	03164	98656	59337	25991	65959	70769	64721	86413	33475	42740	06175	82758	66248
23	42902	66892	46134	01432	94710	23474	20423	60137	60609	13119	78388	16638	09134	59880	63806	48472	39318	35434	24057	74739
24	81007	00333	39693	28039	10154	95425	39220	19774	31782	49037	12477	09965	96657	57994	59439	76330	24596	77515	09577	91871
25	68089	01122	51111	72373	06902	74373	96199	97017	41273	21546	83266	32883	42451	15579	38155	29793	40914	65990	16255	17777
26	20411	67081	89950	16944	93054	87687	96693	87236	77054	33848	76970	80876	10237	39515	79152	74798	39357	09054	73579	92359
27	58212	13160	06468	15718	82627	76999	05999	58680	96739	63700	37074	65198	44785	68624	98336	84481	97610	78735	46703	98265
28	70577	42866	24969	61210	76046	67699	42054	12696	93758	03283	83712	06514	30101	78295	54656	85417	43189	60048	72781	72606
29	94522	74358	71659	62038	79643	79169	44741	05437	39038	13163	20287	56862	69727	94443	64936	08366	27227	05158	50326	59566
30	42626	86819	85651	88678	17401	03252	99547	32404	17918	62880	74261	32592	86538	27041	65172	85532	07571	80609	39285	65340
31	16051	33763	57194	16752	54450	19031	58580	47629	54132	60631	64081	49863	08478	96001	18888	14810	70545	89755	59064	07210
32	08244	27647	33851	44705	94211	46716	11738	55784	95374	72655	05617	75818	47750	67814	29575	10526	66192	44464	27058	40467
33	59497	04392	09419	89964	51211	04894	72882	17805	21896	83864	26793	74951	95466	74307	13330	42664	85515	20632	05497	33625
34	97155	13428	40293	09985	58434	01412	69124	82171	59058	82859	65988	72850	48737	54719	52056	01596	03845	35067	03134	70322
35	98409	66162	95763	47420	20792	61527	20441	39435	11859	41567	27366	42271	44300	73399	21105	03280	73457	43093	05192	48657
36	45476	84882	65109	96597	25930	66790	65706	61203	53634	22557	56760	10909	98147	34736	33863	95256	12731	66598	50771	83665
37	89300	69700	50741	30329	11658	23166	05400	66669	48708	03887	72880	43338	93643	58904	59543	23943	11231	83268	65938	81581
38	50051	95137	91631	66315	91428	12275	24816	68091	71710	33258	77888	38100	03062	58103	47961	83841	25878	23746	55903	44115
39	31753	85178	31310	89642	98364	02306	24617	09609	83942	22716	28440	07819	21580	51459	47971	29882	13990	29226	23608	15873
40	79152	53829	77250	20190	56535	18760	69942	77448	33278	48805	63525	94441	77033	12147	51054	49955	58312	76923	96071	05813
41	44560	38750	83635	56540	64900	42912	13953	79149	18710	68618	47606	93410	16359	89033	89696	47231	64498	31776	05383	39902
42	68328	83378	63369	71381	39564	05615	42451	64559	97501	65747	52669	45030	96279	14709	52372	87832	02735	50803	72744	88208
43	46939	38689	58625	08342	30459	85863	20781	09284	26333	91777	16738	60159	07425	62369	07515	82721	37875	71153	21315	00132
44	83544	86141	15707	96256	23068	13782	08467	89469	93842	55349	59348	11695	45751	15865	74739	05572	32688	20271	65128	14551
45	91621	00881	04900	54224	46177	55309	17852	27491	89415	23466	12900	71775	29845	60774	94924	21810	38636	33717	67598	82521
46	91896	67126	04151	03795	59077	11848	12630	98375	52068	60142	75086	23537	49939	33595	13484	97588	28617	17979	70749	35234
47	55751	62515	21108	80830	02263	29303	37204	96926	30506	09808	99495	51434	29181	09993	38190	42553	68922	52125	91077	40197
48	85156	87689	95493	88842	00664	55017	55539	17771	69448	87530	26075	31671	45386	36583	93459	48599	52022	41330	60651	91321
49	07521	56898	12236	60277	39102	62315	12239	07105	11844	01117	13636	93596	23377	51133	95126	61496	42474	45141	46660	42338

*/ Reprinted from George W. Snedecor, Statistical Methods, 5th Ed., The Iowa State University Press, Ames, 1956.

TABLE 1 —*(Continued)*

	00-04	05-09	10-14	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	70-74	75-79	80-84	85-89	90-94	95-99
50	64249	63664	39652	40646	97306	31741	07294	84149	46797	82487	32847	31282	03345	89593	69214	70381	78285	20054	91018	16742
51	26538	44249	04050	48174	65570	44072	40192	51153	11397	58212	16916	00041	30236	55023	14253	76582	12092	86533	92426	37655
52	05845	00512	78630	55328	18116	69296	91705	86224	29503	57071	66176	34047	21005	27137	03191	48970	64625	22394	39622	79085
53	74897	68373	67359	51014	33510	83048	17056	72506	82949	54600	46299	13335	12180	16861	38043	59292	62675	63631	37020	78195
54	20872	54570	35017	88132	25730	22626	86723	91691	13191	77212	22847	47839	45385	23289	47526	54098	45683	55849	51575	64689
55	31432	96156	89177	75541	81355	24480	77243	76690	42507	84362	41851	54160	92320	69936	34803	92479	33399	71160	64777	83378
56	66890	61505	01240	00660	05873	13568	76082	79172	57913	93448	28444	59497	91586	95917	68553	28639	06455	34174	11130	91994
57	48194	57790	79970	33106	86904	48119	52503	24130	72824	21627	47520	62378	98855	83174	13088	16561	68559	26679	06238	51254
58	11303	87118	81471	52936	08555	28420	49416	44448	04269	27029	34978	63271	13142	82681	05271	08822	06490	44984	49307	62717
59	54374	57325	16947	45356	78371	10563	97191	53798	12693	27928	37404	80416	69035	92980	49486	74378	75610	74976	70056	15478
60	64852	34421	61046	90849	13966	39810	42699	21753	76192	10508	32400	65482	52099	53676	74648	94148	65095	69597	52771	71551
61	16309	20384	09491	91588	97720	89846	30376	76970	23063	35894	89262	86332	51718	70663	11623	29834	79820	73002	84886	03591
62	42587	37065	24526	72602	57589	98131	37292	05967	26002	51945	86866	09127	98021	03871	27789	58444	44832	36505	40672	30180
63	40177	98590	97161	41682	84533	67588	62036	49967	01990	72308	90814	14833	08759	74645	05046	94056	99094	65091	32663	73040
64	82309	76128	93965	26743	24141	04838	40254	26065	07938	76236	19192	82756	20553	58446	55376	88914	75096	26119	83898	43816
65	79788	68243	59732	04257	27084	14743	17520	95401	55811	76099	77585	52593	56612	95766	10019	29531	73064	20953	53523	58136
66	40538	79000	89559	25026	42274	23489	34502	75508	06059	86682	23757	16364	05096	03192	62386	45389	85332	18877	55710	96459
67	64016	73598	18609	73150	62463	33102	45205	87440	96767	67042	45989	96257	23850	26216	23309	21526	07425	50254	19455	29315
68	49767	12691	17903	93871	99721	79109	09425	26904	07419	76013	92970	94243	07316	41467	64837	52406	25225	51553	31220	14032
69	76974	55108	29795	08404	82684	00497	51126	79935	57450	55671	74346	59596	40088	98176	17896	86900	20249	77753	19099	48885
70	23854	08480	85983	96025	50117	64610	99425	62291	86943	21541	87646	41309	27636	45153	29988	94770	07255	70908	05340	99751
71	68973	70551	25098	78033	98573	79848	31778	29555	61446	23037	50099	71038	45146	06146	55211	99429	43169	66259	97786	59180
72	36444	93600	65350	14971	25325	00427	52073	64280	18847	24768	10127	46900	64984	75348	04115	33624	68774	60013	35515	62556
73	03003	87800	07391	11594	21196	00781	32550	57158	58887	73041	67995	81977	18984	64091	02785	27762	42529	97144	80407	64524
74	17540	26188	36647	78386	04558	61463	57842	90382	77019	24210	26304	80217	84934	82657	69291	35397	98714	35104	08187	48109
75	38916	55809	47982	41968	69760	79422	80154	91486	19180	15100	81994	41070	56642	64091	31229	02595	13513	45148	78722	30144
76	64288	19843	69122	42502	48508	28820	59933	72998	99942	10515	59537	34662	79631	89403	65212	09975	06118	86197	58208	16162
77	86809	51564	38040	39418	49915	19000	58050	16899	79952	57849	51228	10937	62396	81460	47331	91403	95007	06047	16846	64809
78	99800	99566	14742	05028	30033	94889	53381	23656	75787	59223	31089	37995	29577	07828	42272	54016	21950	86192	99046	84864
79	92345	31890	95712	08279	91794	94068	49337	88674	35355	12267	38207	97938	93459	75174	79460	55436	57206	87644	21296	43395
80	90363	65162	32245	82279	79256	80834	06088	99462	56705	06118	88666	31142	09474	89712	63153	62333	42212	06140	42594	43671
81	64437	32242	48431	04835	39070	59702	31508	60935	22390	52246	53365	56134	67582	92557	89520	33452	05134	70628	27612	33738
82	91714	53662	28373	34333	55791	74758	51144	18827	10704	76803	89807	74530	38004	90102	11693	90257	05500	79920	62700	43325
83	20902	17646	31391	31459	33315	03444	55743	74701	58851	27427	18682	81038	85662	90915	91631	22223	91588	80774	07716	12548
84	12217	86007	70371	52281	14510	76094	96579	54853	78339	20839	63571	32579	63942	25371	09234	94592	98475	76884	37635	33608
85	45177	02863	42307	53571	22532	74921	17735	42201	80540	54721	68927	56492	67799	95398	77642	54913	91853	08424	81450	76229
86	28325	90814	08804	52746	47913	54577	47525	77705	95330	21866	56401	63186	39389	88798	31356	89235	97036	32341	33292	73757
87	29019	28776	56116	54791	64604	08815	46049	71186	34650	14994	24333	95603	02359	72942	46287	95382	08452	62862	97869	71775
88	84979	81353	56219	67062	26146	82567	33122	14124	46240	92973	17025	84202	95199	62272	06366	16175	97577	99304	41587	03686
89	50371	26347	48513	63915	11158	25563	91915	18431	92978	11591	02804	08253	52133	20224	68034	50865	57868	22343	55111	03607
90	53422	06825	69711	67950	64716	18003	49581	45378	99878	61130	08298	03879	20995	19850	73090	13191	18963	82244	78479	99121
91	67453	35651	89316	41620	32048	70225	47597	33137	31443	51445	59883	01785	82403	96062	03785	03488	12970	64896	38336	30030
92	07294	85353	74819	23445	68237	07202	99515	62282	53809	26685	46982	06682	62864	91837	74021	89094	39952	64158	79614	78235
93	79544	00302	45338	16015	66613	88968	14595	63836	77716	79596	31121	47266	07661	02051	67599	24471	69843	83696	71402	76287
94	64144	85442	82060	46471	24162	39500	87351	36637	42833	71875	97867	56641	63416	17577	30161	87320	37752	73276	48969	41915
95	90919	11883	58318	00042	52402	28210	34075	33272	00840	73268	57364	86746	08415	14621	49430	22311	15836	72492	49372	44103
96	06670	57353	86275	92276	77591	46924	60839	55437	03183	13191	09559	26263	69511	28064	75999	44540	13337	10918	79846	54809
97	36634	93976	52062	83678	41256	60948	18685	48992	19462	96062	53873	55571	00608	42661	91332	63956	74087	59008	47493	99581
98	75101	72891	85745	67106	26010	62107	60885	37503	55461	71213	35531	19162	86406	05299	77511	24311	57257	22826	77555	05941
99	05112	71222	72654	51583	05228	62056	57390	42746	39272	96659	28229	88629	25695	94932	30721	16197	78742	34974	97528	45447

An example will further illustrate how to use the table of random numbers. Suppose you start at row 07, columns 05-09, in the table of random numbers. Reading across four numbers you find 0001. Then dropping down to row 08, you find the four numbers are 8482. Continuing down columns 05-09, you find 6415 1767 8804 3740 5282 0924 7599 0364 etc. Then you would select those addresses corresponding to the numbers between 0001 and 5,000. These include 1 1767 3740 924 364 and so on. (Remember, throw out numbers above 5,000.) Continue this process until 370 <u>different</u> numbers are drawn.

Frequently, a list of addresses is not available in small towns. In this event, it will be necessary to make a complete tour through these small towns and make a map, marking an X for each household. These X's (households) are numbered consecutively. The sample is then selected in the same manner as above.

Drawing the Rural Sample

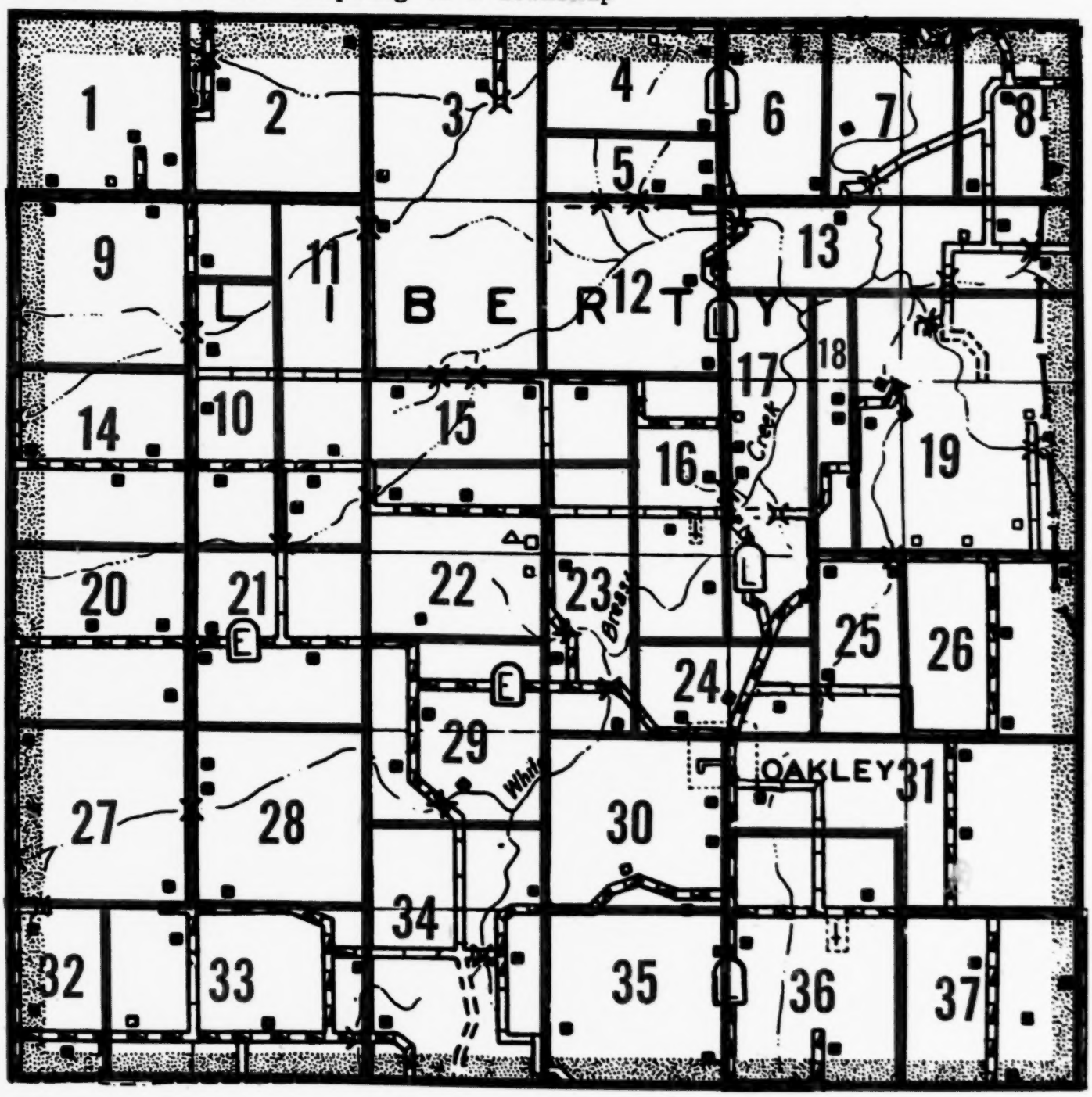
The rural sample should be drawn from all households which are outside the city limits of the towns included in the study. In the event a complete list of both farm and non-farm rural households <u>is</u> available for your community, a rural sample can be selected from this list in the same manner you selected the town sample. However, it is usually difficult to obtain a list of <u>both</u> farm and non-farm rural households. Therefore, we are often forced to draw rural samples from county maps. <u>*/</u>

Each black square on these maps represents a household. One procedure for drawing a sample of households (dots) is to divide the entire area under study into clusters of 3 households. Figure 1 shows how one township has been divided into clusters of 3 households. The entire area is divided into clusters of 3 using some combination of complete, half or quarter section lines. In figure 1, clusters 14 and 20 encompass complete sections. Clusters 10 and 11 are a combination of half and quarter sections. Cluster 36 contains 1½ sections. In order to divide along square, half or quarter section lines, it may be necessary to occasionally form a cluster with 4 or 2 households. However, most clusters should contain 3 households. The boundaries of clusters should follow quarter, half or section lines where possible to make it easier for the interviewers to find the sample households. However, it may be necessary in sparsely populated areas, or in areas where roads and rivers run crooked, to ignore section lines and form clusters of 3 households in the most convenient "shape" possible.

After the area is divided into clusters, the <u>clusters</u> should be numbered consecutively. A sample of clusters is selected by using the table of random numbers.

<u>*/</u> The Iowa Highway Commission has copies of all county maps showing the location of rural households. Some counties will also have plat maps from other sources.

FIGURE 1. Cluster Sampling of a Township



When dividing the entire study area into clusters, make sure every part of the rural area is in a cluster. Failure to include a part of the area in clusters would result in a biased sample, since the excluded households would have no chance of being selected.

The county maps sometimes are not up-to-date. When the interviewing begins, you may find there are actually less than 3, or more than 3, occupied households in some cluster areas. Go ahead and interview all households in selected clusters to avoid bias. Furthermore, the maps may not show new suburbs at the edge of towns. Unless new town additions are identified, these households may be selected in both the rural and urban samples. In addition, inclusion of these areas in a rural sample may result in a very large number of households in a given cluster. In the event a section is selected which includes urban or small town households, all urban or small town households are eliminated from the cluster. Interview all rural households within the cluster.

Sample Size

The number of households to be included in the sample depends on the number of households in the area, the desired precision of the results and the objectives of the study.

The first step in determining sample size is to estimate the number of households in the area to be studied. Determine the number of town households by numbering the lists obtained from the city clerks or from the utility companies and by counting the number of X's marked on the maps prepared by driving around the towns.

Estimate the number of rural households in the following manner: Using the census data, subtract the town population from the total population of the area being surveyed. The remainder should be an estimate of the total rural population. Divide the total rural population by the average size of rural households to obtain an estimate of the number of rural households. In the event the average size of rural households is unknown, use a rough figure of 4 members per household. The sum of the town and rural households will provide an estimate of the total number of households in the area.

Now that you know the number of households in the area, next determine the degree of precision wanted in the results. As a rule of thumb, you will want to have a sample size that will let you estimate a percentage figure within plus or minus 5 percent of the true figure. You will then have a chance of being right 95 percent of the time. Table 2 shows the number of households needed to obtain answers of this precision for several population sizes.

Finally, you must decide the number of households in the sample which should come from the towns and from the rural area. As a rule of thumb, the percent of town and rural households in the sample should be the same as the percent of town and rural households in the total population.

If a total of 1,000 households are included in the town and rural area to be sampled and 300 are located in rural areas, then about 30 percent of

the households should be drawn from the rural area and 70 percent from the town or towns.

In the event you plan to make an analysis of sub-areas, separate samples must be drawn from each sub-area. In a county-wide survey, it may be desirable to analyze the trade area around 2 or more towns. In this case, separate samples must be drawn for each town. The sample size of each sub-area should be determined in the same manner as a sample for the total area as a single unit. The sample size for each sub-area will be smaller than a sample drawn for the total area. However, the total of all sub-area samples will be greater than a sample for the total area.

TABLE 2.

Suggested Sample Sizes For Selected Population Sizes In A Simple Random Sample

Total Number of Households In the Population *	Number of Households Needed in The Sample
100	80
120	92
140	104
160	114
180	124
200	133
220	142
240	150
260	158
280	165
300	171
320	178
340	184
360	189
380	195
400	200
420	205
440	210
460	214
480	218
500	222
600	240
700	255
800	267
900	277
1,000	286
1,250	303
1,500	316
1,750	326
2,000	333
2,500	345
3,000	353
3,500	359
4,000	364
4,500	367
5,000	370
6,000	375
7,000	378
8,000	381
9,000	383
10,000	385
More than 10,000	400

* Make sure that you have added together all the households (rural and town) in the population before you determine the sample size.

CHAPTER FIVE

Distributing and Collecting Questionnaires

After the questionnaire has been prepared and pre-tested and the sample drawn, the next step in a community survey is to distribute questionnaires. At this stage, the main objective is to achieve the highest possible rate of completion. Even if you have drawn a statistically accurate sample, the accuracy of the survey will be impaired unless a high percentage of those designated to receive a questionnaire actually receive, complete and return it. Consequently, the suggestions and recommendations offered in this section are oriented toward improving the survey completion rate.

Although there are a number of methods for distributing questionnaires (direct contact, mail, etc.), the highest rate of completion is assured when personal contacts are made and the purpose of the survey and instructions for completing it have been explained to the respondents. Distributing questionnaires by mail or taking interviews by telephone may be most appropriate for some kinds of surveys; but for the most part, they are less effective than direct contact. However, specialized use of these methods will be discussed later in this section.

A procedure for distributing questionnaires which has worked well in many communities involves having the volunteer workers contact the designated households, explain the survey and instructions for completing it, leave a blank questionnaire and plain white envelope and make an appointment to return to pick up the completed questionnaire. Having the respondent seal his completed questionnaire in the plain envelope helps to insure the anonymity of the respondent. Tell the respondent he does not have to write his name on either the questionnaire or the envelope. If the respondent feels that he may be identified, it will probably affect the way he answers many questions.

For the planners of a community survey, the most difficult phase of distributing questionnaires by direct contact is getting enough volunteer assistance to help with the job. If a particular organization (such as the Junior Chamber of Commerce) is making the survey as a project, then it is usually not too difficult to line up enough volunteer workers to complete the job. As a rule of thumb, there should be one volunteer worker for every 10-15 questionnaires to be distributed. Therefore, if 300 households are included in the sample, you will probably need a minimum of 20-25 volunteer workers to make the contacts and distribute the questionnaires.

One of the keys to success in a community survey is proper organization and coordination. Set a definite date to begin distributing questionnaires. Make an intensive effort to get all the questionnaires distributed, completed and returned in a relatively short period of time, say one week. If the effort is not coordinated, the completion rate is usually low and completed questionnaires trickle in over an undesirable length of time. Therefore,

survey planners should establish a definite kick-off date and deadline date, and concentrate their efforts on getting the job done in this time period.

The rate of return of completed questionnaires can usually be improved if people in the community know about the survey ahead of time. In this respect, some timely newspaper publicity ahead of the kick-off date can stimulate interest in the survey project. Publicizing the survey ahead of time, along with the dates when the questionnaires will be distributed, can serve to alert people that an interviewer may call.

Since you will need several volunteer workers to distribute and pick up the questionnaires, it is very important to have a training meeting for the volunteers a few days in advance of the kick-off date. At this meeting, discuss procedures and make distribution assignments. Having all workers together for such a training meeting helps insure that all volunteers will follow a uniform set of procedures.

Arrange questionnaires (in geographical proximity) in groups of 5 so that volunteers can take as many groups of 5 as they wish. But the <u>minimum</u> number of questionnaires any volunteer could take would be 5. This procedure facilitates making assignments to volunteer workers. As assignments are made, it is a good idea to note the assignments on a worksheet. Refer to this record sheet to keep track of questionnaires as they are completed and returned.

Following is a guide on instructing volunteer workers on the procedure for distributing and picking up completed questionnaires:

1. Explain the reason for the survey and identify the originating groups and organizations to the respondent.

2. Stress the anonymity of the respondent. Assure the householder that his answers can in no way be traced to him specifically.

3. Point out the need for 100 percent cooperation in completing the questionnaire. Point out that only a fraction of the total community is being interviewed and for that reason it is very important to have a complete return from those who were selected for interviewing. Stress the random nature of the selection of the people to be interviewed to dispel any concern that they, as individuals, were picked out because they had a particular attitude or held a particular position.

4. It is important that the head of the household participate in completing the questionnaire. However, the husband and wife may be encouraged to fill it out together or even in consultation with the children.

5. It is convenient and desirable to agree on a time to call back to pick up the completed questionnaire. It is also desirable to have the family leave the completed questionnaire in an agreed-upon place (such as a mailbox) if it is known in advance that they will not be home at the time of the call-back.

6. There should be a minimum of 1 day and a maximum of 3 days between the time a questionnaire is left with a family and the time it will be picked up.

7. In the event a family is not home at the time of the first call, at least 2 more attempts should be made to contact the family. If the residence is vacant, note this; however, make no substitutions. The number of people to be interviewed included a sufficient number of "extras" to replace a percentage of vacant households and/or unavailable families. Only the households actually assigned should be contacted. Do not make substitutions.

8. Even after explanation, a few of the people will probably refuse to fill out a questionnaire. In this event, make an attempt to insure that the individual fully understands the intent and purpose of the survey as well as the insurance of his anonymity as a respondent. If he still refuses, thank the person for his time and leave. Pressure and arguing could do more harm than good in this situation.

9. Explain carefully to each respondent how to complete the questionnaire. This is particularly true for the multiple answer questions where a response is desired for each of the various items. Mention that the information concerning age and income cannot be traced to the individual; and therefore, he should have no reservations about completing this part of the questionnaire.

10. The interviewer may go through a few questions with the respondent to insure that the method of response is understood. However, be careful not to express your own opinions about any of the questions.

11. Try to distribute all the questionnaires within a 3 or 4-day period so that all of the questionnaires are answered during the same week.

12. Tell the respondent it is important that he answer all of the questions. If he has no opinion on some items, tell him he should mark the "don't know" category.

Mail Questionnaires

The method just described usually insures a high rate of completion on questionnaires and consequently greater accuracy in survey results. However, it does require the assistance of a fairly large group of volunteer workers. In some situations, it may be desirable to mail questionnaires rather than personally deliver them and pick them up. However, the rate of return on mail questionnaires seldom exceeds 50 percent. The undesirable feature of this method is that there is no easy way of determining if those who return questionnaires are representative of the total community.

In situations where representativeness or accuracy is not a consideration, however, the mail questionnaire can be an easy and inexpensive way of

gathering information. If, for example, the purpose of a survey is to obtain a list of people who might be interested in employment in a new industry, a mail questionnaire sent to all households in the community could be effective. In such a situation, persons who would be most interested in employment would be most likely to return completed questionnaires. It is improbable that this method would identify all persons interested in employment in a new industry; but if the objective is to have only a general estimate of labor availability without expending a great deal of time, money and effort, it is an acceptable method.

Similarly, if the purpose of a survey is to get ideas for community improvement and you do not necessarily want opinions from all community residents (or a statistically valid sample thereof), the mail questionnaire method could be quite satisfactory.

As an example, if the city council were seeking suggestions on how to improve the parking problem in a particular community, a simple questionnaire consisting of an invitation to submit ideas for solving the problem could be mailed to all community residents. Here the purpose would be only to get some good ideas and not to validly measure the community attitude toward a particular solution.

You can generally improve the return on mail questionnaires if the questionnaire is limited to a few simple questions and if you enclose a stamped return envelope.

Newspaper and/or Telephone Surveys

A newspaper or telephone survey can be used when the objective of the survey is of the same general type as indicated for the mail questionnaire.

Several communities have achieved good labor survey results from a questionnaire published in a local newspaper. All people interested in employment in a new industry were invited to complete the questionnaire and return it to the community group sponsoring the survey. This technique, however, has worked best where an industry is either thinking about or has decided to move to the town, and you would like a list of potential employees along with some of their characteristics.

A telephone canvass of a community can also provide information if you are only interested in answers to one or two simple questions.

But let us again emphasize that surveys conducted by mail, newspapers, telephone, or other methods of mass distribution can be used effectively only when it is not necessary to have an unbiased indication of attitude or opinion from the whole community. If the purpose of the survey is to measure some community opinions, attitudes or characteristics, an inaccurate survey can be worse than no survey at all, since it can lead to erroneous and misleading conclusions. Therefore, select the method of distribution on the basis of the survey objectives.

CHAPTER SIX

Tabulation and Analysis

You can tabulate survey data manually or by machine. The manual method is generally the most feasible way of tabulating data for the types of surveys discussed in this paper. */ The basic steps in the manual method of tabulating and analyzing survey data are:

1. Editing the questionnaires.
2. Sorting the questionnaires.
3. Coding
4. Tallying
5. Computing totals and percentages.
6. Computing confidence intervals.

Editing the Questionnaires

Edit the questionnaires to be sure they were completed as intended. It is not unusual to get several answers to a question calling for only one answer. For example, responses to the question, "How often do you drive into town each week?" will sometimes be "10-14 times a month." In this case, convert the answer to the number of weekly trips. Select the mid-point, 12, and divide by 4 to get 3 trips per week.

In the case of structured questions calling for a "yes", "no", or "don't know", the answer may include a circle around both the "yes" and "no". This person probably has not made up his mind and the correct answer should be "don't know."

Another type of question which sometimes causes problems is, "In which town do you buy most of your groceries? If more than one town is listed, please rank 1 and 2." The answer will frequently include two towns with no ranking. A possible solution to the problem is to arbitrarily rank these towns 1 and 2.

Sorting the Questionnaires

If an analysis is to be made of geographic sub-areas, or of population or income groups, the questionnaires should be sorted into these groups prior to tallying the data. For example, an analysis might be made of the rural questionnaires and urban questionnaires. The questionnaires should then be sorted into the urban group and the rural group. Each questionnaire should be numbered for later identification, as illustrated on the sample worksheet (see table 3).

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*/ We suggest that you obtain the help of an expert before attempting to use machine methods.

Coding

Coding speeds up the tabulating process by substituting a number for a word answer. The purpose of coding is to eliminate the need for recording lengthy answers to questions.

Prior to assigning numbers to the answers, all possible answers must be listed. This procedure is relatively easy in the case of structured questions. If the listed answers are "yes", "no" and "don't know", make the following code assignment:

Answer	Code
Yes	1
No	2
Don't Know	3
No Answer	4

Tallying

Tallying means recording the answers on a worksheet. This procedure is probably most efficient when handled by two people, one recording and the other calling off the coded answers. The answers may be recorded on 20-column data pad worksheets with approximately 50 lines per sheet, or on other suitable columnar sheets. As shown in the sample worksheet, record the questions in the columns with each question identified at the top of the appropriate column. Record the answers to each questionnaire on one line across the paper. Each questionnaire is identified by number on the left side of the worksheet. Approximately 5 blank lines should separate each group of questionnaires sorted by geographic sub-area or income bracket, etc. The blank lines enable you to analyze the data for each sub-group.

TABLE 3

Sample Worksheet

Page 1

Questionnaire Number	Question 1	Question 2	Question 3	Question 4	Question 20
001					
002					
003					
004					
005					
006					
007					
008					
009					
010					
050					

Analysis

The first step in the analysis is to check the accuracy of the tallying process. This accuracy check should include a detailed check of a small portion of the worksheet (say 5 to 10 percent). If mistakes exceed 2 in every 100 answers, check the entire worksheet. If the errors are 2 or less per 100 answers, look over the balance of the worksheet for obvious errors. After the data are verified for accuracy, total the columns for each question. In every case, check these totals for accuracy. The methods of statistical analysis, including how to compute averages, percentages and confidence intervals for community surveys are presented in Appendix B.

After the data are analyzed, present the results in table form. Table 4 is an example of the results of a community attitude study.

TABLE 4

1. Are you in favor of a central high school building?

	Yes		No		Don't Know		No Answer	
	Number	%	Number	%	Number	%	Number	%
Rural	51	59.3	24	27.9	8	9.3	3	3.5
Urban	190	75.7	44	17.5	10	4.0	7	2.8

2. Are you in favor of the school site proposed by the Citizen's Committee?

	Yes		No		Don't Know		No Answer	
	Number	%	Number	%	Number	%	Number	%
Rural	44	51.2	26	30.2	13	15.1	3	3.5
Urban	162	64.5	59	23.5	22	8.8	8	3.2

3. If a central high school building for the 10th, 11th and 12th grades is built, do you favor bonding to capacity to build a complete building now? (The other alternative would be to construct the basic building first, then add a gym and other features later.)

	Yes		No		Don't Know		No Answer	
	Number	%	Number	%	Number	%	Number	%
Rural	38	44.2	32	37.2	13	15.1	3	3.5
Urban	149	59.4	60	23.9	35	13.9	7	2.8

Table 5 is an example of the results of a retail trade study.

TABLE 5

Percent of 250 Homes in X County Purchasing Most of Their Goods and Services in Selected Towns, December, 1964

	Towns							
	A	B	C	D	E	F	Mail Order	Don't Buy
Groceries	8.4	13.2	6.0	32.4	5.2	31.2	0	3.6
Women's Clothing	0	2.8	0	42.8	12.8	25.2	9.2	7.2
Children's Clothing	0	.8	0	28.4	8.4	17.2	8.4	36.8
Men's Clothing	2.8	3.6	0	50.4	11.2	19.6	2.8	9.6
Furniture	.4	5.6	1.2	38.8	5.6	22.8	1.6	2.4
Major Appliances	2.4	5.2	4.0	32.8	6.4	25.2	4.4	19.6
Hardware	7.2	15.2	6.0	23.2	2.8	34.4	1.2	10.0
Household Repairs (plumbing, etc.)	7.6	13.6	10.0	16.8	3.2	36.0	.4	12.4
Medical Care	0	15.2	10.4	40.4	3.6	27.2	0	3.2
Dental Care	0	11.2	0	41.6	10.0	26.4	0	10.8
Drugs	2.8	13.6	4.0	43.2	4.0	22.0	0	10.4
Beauty Salon, Barber, etc.	8.4	11.2	5.2	21.6	3.6	37.2	0	12.8
Dry Cleaning	0	6.0	2.0	34.8	11.0	27.2	0	18.8
Lawyer	0	14.8	2.0	32.0	3.2	20.0	0	28.0
Recreation	2.0	6.8	2.4	19.6	6.0	22.4	.4	40.4
Automobile Service	5.2	12.0	4.8	22.8	3.2	38.8	.4	12.8
Banking	11.6	14.0	8.4	17.6	2.0	39.6	0	6.8

Table 4 presents both the number of answers in each category and the percent of the total answers in each category. Table 5 shows the percent of answers in each category. The number of answers in each category can be obtained by applying the appropriate percentage to the total number of people answering the survey. This latter method is useful when the number of categories in the table is large.

CHAPTER SEVEN

Interpreting Survey Results

Once a survey is completed and results tabulated, two essential steps remain: (1) interpreting the results and (2) using the findings in community education and/or action programs. Accurate and meaningful interpretation of the results is an essential step in using the results to best advantage.

In interpreting survey results, keep in mind that an opinion expressed on a questionnaire is only an opinion expressed at one point in time. It is not necessarily a commitment on the part of the respondent to act in a certain way or to support a certain issue when and if it comes to his attention again. Consequently, in interpreting the significance of answers on a community survey, it is usually wise to discount the extent of favorability expressed on certain kinds of issues. For example, a question on a survey may ask about opinions and desirability of school reorganization. Many may favor the general question. However, when and if this becomes a community issue and consequently more of the specifics concerning reorganization come out -- such as location, particular schools involved, finances, buildings, etc. -- many people who expressed a favorable attitude toward reorganization in general may be opposed to a particular reorganization plan. Consequently, as a general rule, ask specific questions.

As a further illustration of how the specificity of the question can affect interpretation of results, one Iowa community included in its survey the question, "Do you feel a community hospital is needed in this area?" In response to this question, 61 percent indicated they were in favor, 30 percent felt a hospital was not needed and the other 9 percent didn't know.

On the basis of the answers to this question, it would appear that the community was 2 to 1 in favor of a hospital and that the time was ripe for a hospital drive. However, the next question asked, "Would you favor such a hospital if it were to be paid for through increases in local taxation?" By attaching the additional qualification, a notable difference in response resulted. In answer to this second question, the percent favorable declined from 61 to 43 percent while the percent opposed increased from 30 to 40 percent. It is also significant to note that the percent of "don't know" responses increased from 9 to 17 percent. Presumably, these 17 percent were indicating they would need more information, such as amount of tax increase, size and location of the hospital, etc., before they would decide whether they were for or against a community hospital. Based on the answers to the second question, it would be debatable whether a hospital drive should be launched until more information were available concerning the need for the hospital and methods of financing.

We said earlier, it is a good plan to try to determine the personal and social characteristics of the persons completing questionnaires. Such information could help determine what kinds of people were in favor of, or opposed to, particular issues (or what kind of people purchase locally as opposed to other towns and cities). A detailed analysis might be quite

beneficial in the case of questions such as the one on hospitals. This further analysis of answers on the basis of the age or income of the respondent might reveal differences which could be incorporated into an educational plan designed to increase favorability. Such an analysis might reveal that most of the opposition is among older people or it could reveal that there is nearly equal opposition (or favorability) among all age groups. Whatever was revealed by this more intensive analysis would be of value in planning an educational program designed to further define the need for a hospital.

"Don't Know" Responses

Frequently, many respondents (say 20-30 percent) will respond with a "don't know" answer to a question. In such cases, the high percentage of "don't know" answers may be interpreted as an indication that the person does not have enough information on the issue raised by the question to know whether he is in favor or opposed. This could be an indication of the need for a community-wide education program to increase the level of information on various issues.

Significance of Differences in Responses

When a community survey is to be used as a basis for determining possible community action programs, the possibility of its success will depend in large part on the extent of favorableness expressed toward a particular issue or plan. Consequently, it is important to interpret differences in responses correctly.

Is the difference in opinion or response great enough to be a "significant" difference? For example, could a question where 52 percent responded with a "yes" while 48 percent responded with a "no" be considered a "significant" difference? Obviously, such a difference would be significant if it represented the results of an election requiring only a simple majority to win. However, based on the results of a sample survey, it would be quite risky to interpret such a percentage difference as a "true" or significant difference.

In Chapter 4, we said a sample of opinion is always subject to a certain amount of sampling error. The amount of error can be controlled by using accurate sampling procedures, but it still affects the interpretation and significance of results.

What, then, is a "significant" difference? This will depend on the number of people surveyed, the way the question is asked and several other factors, but some general guidelines can be developed to aid in interpretation.

Let's suppose 100 people were questioned about school reorganization. They were asked simply to indicate whether they were "in favor" or "opposed." Even when the 100 people have been selected by the sampling procedures indicated in chapter 4, we would be on shaky ground to accept anything less than a 60-40 split as being a significant difference. */ That is, if less

*/ This statement is based on the Chi Square test at the 5 percent level of significance.

than 60 percent expressed a favorable attitude toward school reorganization, we could not be very confident that a majority of all community residents were in favor of school reorganization. However, let us suppose we asked this same question of 400 people in the same community who were selected by the procedures indicated in chapter 4. With this larger sample out of the same total population, if we found 55 percent who expressed favorability, we could be quite confident (95 percent) that a majority of community residents were in favor of this particular issue. To further illustrate, if we were to ask 1,000 people, then a 53-47 percent split in answers would make us just as confident that a majority of the community was in favor as a 55-45 split when 400 people were asked.

No attempt will be made in this publication to include a detailed set of procedures for assessing the significance of survey results. However, the illustrations used above should provide some guidelines for evaluating and interpreting responses on questionnaires, so that erroneous or unwarranted conclusions are held to a minimum. If more detailed analysis is desired, consult a statistician.

CHAPTER EIGHT

Using Survey Results

A fairly common failing in community surveys is to end up the process with a neatly bound volume of facts and figures which collects dust. Just going through the exercise of a community survey may serve some purpose, but the real objective is to provide information for decision-making about programs and projects. If the survey results are to do the community any good, the findings must be disseminated. This chapter suggests several ways to use survey results. The means of using survey results presented here are intended to be suggestive and not exhaustive.

As a first step, present the summarized findings to the persons who were involved in the survey at the beginning. In particular, this includes those persons who helped design and distribute the questionnaire and code and summarize the findings. A meeting of these people, in which the high points are presented and questions raised, would be one way of presenting the summarized findings. Give a copy of the report to each participating community organization.

An elaboration of this technique is the "town meeting." All interested citizens, including representatives of the various organizations, are invited to attend. Successful meetings of this type must be well organized and promoted. Mass media and letters will help attendance, but personal contacts are the only way to insure attendance.

Another way of using survey results is to secure cooperation of the local mass media in developing news stories. A general release of survey findings will publicize the survey. More specific stories, perhaps a series built around segments of the survey, will have a greater impact. For example, a survey containing data about schools, government, recreation, retail shopping centers, community facilities and churches would provide the information for an article or series of articles for use by newspapers, radio and television.

The sponsoring group can get more mileage out of survey results by forming teams of individuals to develop and present a series of 15-20 minute presentations at meetings of community organizations. Here, as in the other suggestions, the purpose is to obtain widespread awareness and understanding of the survey findings as a basis for community and/or group actions.

Community groups can make use of survey results when planning their yearly program. For example, a service club could use the information contained in the survey to determine the problems concerning the community and design their community service program to work on those problems. The information might also be used to identify possible interest areas for discussion at monthly programs of the club. The success of this method depends to some extent on the group being exposed to the survey information by one or more of the means previously outlined.

The survey results can also be used by distributing short summaries -- 2 to 4 pages -- of the most important findings on a mass basis to community residents. The same technique could be used on particular segments of the survey, like recreation or libraries.

No technique by itself will achieve the aim of having community residents develop an awareness and understanding of the information gathered in a survey. Use several or all of the means available to diffuse the information.

Two cautions should be noted in using survey results. First of all, take care that individuals filling out questionnaires are not identified with their answers. Cooperation in obtaining the information is always based on the agreement that the answers of the respondent are confidential. To do otherwise would destroy the cooperative spirit of the people as well as reduce the validity of the information.

A second caution regards making public the answers to some questions on the survey. The responses to some questions can often be misinterpreted unless you present sufficient background. Give key leaders an opportunity to react before the information is generally released.

An example may illustrate the point. Suppose that 60 percent of the respondents indicate that water rates are too high. Further checking might reveal that the rate is reasonable and comparable with similar-size cities. A story reporting the 60 percent figure would likely stimulate criticism and invoke the ill will of the city government. A story reporting the 60 percent figure along with a comparison of rates in other cities would be more useful and be less likely to antagonize anyone. This caution is not intended as a means of "covering up"; it is intended to suggest that you use discretion in publishing survey results.

CHAPTER NINE

Survey Checklist

The following is an ordered summary of the most important steps in community surveying. Each of these steps is discussed in detail in the preceding chapters. The following checklist can serve as a quick reference for "next steps" throughout the survey process.

Steps

1. _____ Identify the survey area.

2. _____ A sponsoring group or organization agrees to take major responsibility for organizing, planning and executing the community survey.

3. _____ Identify the groups or organizations relevant to the community survey.

4. _____ Contact key persons in the relevant groups. Explain the purpose of the survey, the procedure and the role the group may fulfill.

5. _____ Meet with representatives of the relevant groups to discuss the survey. Discuss mechanics of the survey and decide what topics or subject areas are to be surveyed.

6. _____ Develop the questionnaire, paying particular attention to the following:

    a. _____ Representatives submit their ideas for questions, indicating which ones they feel are most important.

    b. _____ Ideas for questions are put into a form which can be easily interpreted by the respondents.

    c. _____ The questionnaire is "pre-tested" with a small group to determine which questions need to be clarified.

    d. _____ Change the questionnaire -- if necessary -- and prepare copies. Determine the number by the size of sample. Run several extra copies.

7. _____ Define the geographic area in which people are to be interviewed (see step 1).

8. _____ Determine the number of households within the area. If the survey includes rural and town people, determine the number of households for each area.

9. _____ Draw the town sample by the simple random sampling procedure.

10. _____ Draw the rural area sample by the cluster sampling technique. Towns of less than 2,500 population may be sampled in the same way.

11. _____ Enlist volunteers to distribute and collect questionnaires.

12. _____ Hold a meeting of volunteers to explain the survey and interviewing procedure.

13. _____ Release publicity when volunteers start distributing the questionnaire.

14. _____ Edit completed questionnaires.

15. _____ Sort the questionnaires into the categories to be used in analysis, such as rural-urban, income level and/or amount of education.

16. _____ Number questionnaires.

17. _____ Develop a code for each question.

18. _____ Code questionnaire responses.

19. _____ Tabulate the coded responses.

20. _____ Analyze tabulated data.

21. _____ Put the survey results into a report. Distribute report.

22. _____ Develop a systematic plan for disseminating the results of the survey.

APPENDIX A

Sample Community Survey Items

Examples of questions which have been used in various community surveys are presented in this Appendix. It is not an exhaustive list but rather is intended to be illustrative of various kinds of questions which have and can be used in community surveys. In some cases, it may be possible to use questions directly from this list. However, in most cases, it will probably be desirable to use ideas from this list to develop questions which are more specifically adapted to the individual community. Included in this Appendix are questions on the following:

A. Municipal or public services.

B. Industrial development.

C. Community services.

D. Community image.

E. Churches.

F. Recreation and tourism.

G. Government.

H. Public affairs and education.

I. Schools.

J. Youth.

K. Senior citizens.

L. Agriculture.

M. Personal and social characteristics.

N. Labor survey questionnaire.

O. Retail trade questionnaire.

Format For Yes-No Questions

		Yes	No	Don't Know
1.	Do you think the city should provide a summer insect control program?	____	____	____
2.	Do you think _____ county's facilities and services for the mentally and physically handicapped are adequate?	____	____	____

	Yes	No	Don't Know
3. Would you be in favor of a community-wide immunization program for communicable diseases (such as polio, smallpox, etc.)?	___	___	___

Sample of Additional Yes-No Questions

A. Municipal or Public Services

1. Do you feel the city should provide funds for suitable airport facilities for _____?
(name of town)
Yes ___ No ___ Don't Know ___

2. Are you satisfied with the library facilities in _____?
(name of town)
Yes ___ No ___ Don't Know ___

3. Are there sufficient books in the public library to meet the needs of you and your family?
Yes ___ No ___ Don't Know ___

4. Does anyone in your family use the public library?
Yes ___ No ___ Don't Know ___

5. Do you think the city should provide a summer insect control program?
Yes ___ No ___ Don't Know ___

6. Do you think there should be a more rigid building code and a building inspector for _____?
(name of town)
Yes ___ No ___ Don't Know ___

7. Would you favor parking meters for the downtown _____ area?
Yes ___ No ___ Don't Know ___

8. Would you favor an ordinance requiring downtown business people to park off main street?
Yes ___ No ___ Don't Know ___

9. Would you favor increasing the city tax levy to improve street lighting in _____?
(name of town)
Yes ___ No ___ Don't Know ___

10. Do you think the _____ town ordinances need reviewing and modernization?
Yes ___ No ___ Don't Know ___

11. Do you think the traffic ordinances in _____ are adequately enforced?

Yes ___ No ___ Don't Know ___

12. Are you satisfied with the law enforcement in _____ county?

Yes ___ No ___ Don't Know ___

13. Do you think the mayor-council type of town government is more satisfactory than the city manager plan?

Yes ___ No ___ Don't Know ___

14. Do you think staggered terms for the city council would be better than the present system where all terms expire at the same time every two years?

Yes ___ No ___ Don't Know ___

15. Would you favor the development of zoning ordinances for _____?

Yes ___ No ___ Don't Know ___

16. Would you favor county zoning (zoning of rural areas as well) for _____ county?

Yes ___ No ___ Don't Know ___

17. Would you favor the necessary increase in taxes to provide more curb and gutter for _____ streets?
(name of town)

Yes ___ No ___ Don't Know ___

18. Do you feel that a community hospital is needed in this area?

Yes ___ No ___ Don't Know ___

19. Would you favor such a hospital if it were to be paid for through increases in local taxation?

Yes ___ No ___ Don't Know ___

20. Would you favor fluoridation of your community's water supply?

Yes ___ No ___ Don't Know ___

B. Industrial Development

1. Do you think your community is large enough and has enough to offer to attract new industry? */

2. Do you think it would be good if your community had more industry?

*/ To save space, "yes," "no" and "don't know" have been omitted in the remainder of this appendix.

3. Which of the following, in your opinion, work against _____ getting additional industry? (name of town)

   _____ a. Lack of skilled labor.

   _____ b. Lack of industrial facilities.

   _____ c. Lack of promotion.

   _____ d. Current tax structure.

4. In order to get new industry to come into an area, it is a good idea to provide land and facilities for their needs to be made available for purchase or lease at reasonable rent. Do you...

   _____ a. Strongly agree.

   _____ b. Agree.

   _____ c. Disagree.

   _____ d. Strongly disagree.

5. If there were a good possibility of getting a new industry which would provide jobs in this area, but it was necessary to raise a sum of money to purchase land and facilities for lease at a reasonable rent, would you be willing to invest in stock to help provide this capital?

6. Do you feel the present industries in this city are receiving community support?

7. Do you believe there are enough non-farm jobs available in the _____ area?

8. Do you feel that _____ should devote more effort to trying to attract new industry?

9. Do you think that money should be raised in the _____ community to provide an industrial park (facilities) to aid in attracting new industry?

C. Community Services

1. Do you think community organizations should join together in an effort to get new community residents acquainted with and involved in community organizations?

2. Do you think community organizations should join together in a planned program for welcoming new residents to the community?

3. Do you feel local businessmen and organizations should support a welcome wagon to welcome new residents to the community?

4. Would you favor a United Fund System (Community Chest) that would consolidate a majority of the present community fund drives?

5. Do you feel that _____ civic organizations should make an additional effort to improve urban-farm relations?

6. Do you think _____ needs a community center to provide a place for organization and community meetings?

7. Should the _____ community publish a calendar of scheduled meetings and events?

8. Is there a need for a long-range planning board or committee for the future and best interests of _____? (This planning committee would help coordinate the efforts of city councils and governmental bodies as well as organizations to result in social and economic improvement and development.)

9. There has been some discussion of land use planning and zoning for _____ county. Land use planning and zoning applies to rural areas as well as urban. Do you feel you know what land use planning and zoning means and what it would do in the community?

10. Would you or members of your family make use of a free mobile tuberculosis X-ray unit? (chest x-rays)

11. Would you be in favor of community-wide immunization programs for communicable diseases? (Such as polio, smallpox, etc.)

12. Do you feel your community has enough:

    _____ a. General medical doctors.

    _____ b. Dentists.

    _____ c. Surgeons.

13. Do you think additional mental health facilities need to be made available for _____ county residents?

14. Do you think _____ county's facilities and services for the mentally and physically handicapped are adequate?

15. Should a Dutch Elm disease control program be organized for _____?

16. Do you feel a credit bureau (to provide credit ratings on businesses and individuals) would be of value in the _____ area?

17. Do you feel that additional emphasis should be placed on civil defense in the _____ community?

18. Do you feel that additional public rest room facilities are needed in the downtown area?

19. Do you feel there is a need for an employment office in _____ county?

20. Do you think there should be a YMCA and/or YWCA facility in your community?

D. Community Image

1. Following are a number of terms which are often used to describe communities. They are listed as pairs, with one descriptive term at one side and the opposite term at the other. You will circle one number for each pair. For example, if you believe _____ is very friendly, you would circle number 6. If you feel it is very unfriendly, you would circle a 1. If you feel that it is neither very friendly or very unfriendly, you would circle one of the numbers between 1 and 6 which best expresses your opinion. Please circle one number under each of the following terms:

	Unfriendly					Friendly
a.	1	2	3	4	5	6
	Going downhill					Moving ahead
b.	1	2	3	4	5	6
	Discourages new industry					Encourages new industry
c.	1	2	3	4	5	6
	Inactive					Active
d.	1	2	3	4	5	6
	Businessmen -- cold & standing still					Businessmen -- friendly and progressive
e.	1	2	3	4	5	6
	Poor place to do business					Good place to do business
f.	1	2	3	4	5	6
	Residential area run-down					Residential area neat & clean
g.	1	2	3	4	5	6
	Business district run-down					Business district neat & clean
h.	1	2	3	4	5	6
	No chance for new jobs					Good prospects for developing new jobs
i.	1	2	3	4	5	6
	City government inefficient					City government efficient
j.	1	2	3	4	5	6
	Only part of businessmen promote community					Businessmen all promote community
k.	1	2	3	4	5	6

2. Please indicate how you evaluate each of the following in relation to other communities you are familiar with. If you think the streets are excellent in comparison with other towns, you might circle 6; if you think they are a little above average, you would circle 4; and if you think they are very poor, you might circle 1. Please circle the number that expresses your evaluation of each of the following:

	Very Poor	Poor	Below Average	Above Average	Good	Excellent
a. Streets	1	2	3	4	5	6
b. Churches	1	2	3	4	5	6
c. Fire protection	1	2	3	4	5	6
d. Law enforcement	1	2	3	4	5	6
e. Public transportation	1	2	3	4	5	6
f. Street maintenance	1	2	3	4	5	6
g. Water supply	1	2	3	4	5	6
h. Recreation facilities	1	2	3	4	5	6
i. Medical facilities	1	2	3	4	5	6
j. Garbage collection	1	2	3	4	5	6
k. Utilities	1	2	3	4	5	6
l. Library facilities	1	2	3	4	5	6
m. Parking	1	2	3	4	5	6
n. Job opportunities for young people	1	2	3	4	5	6
o. Nursing home facilities for older retired persons	1	2	3	4	5	6
p. Attitude of businessmen	1	2	3	4	5	6
q. Participation of people in community activities	1	2	3	4	5	6
r. Water system	1	2	3	4	5	6
s. Industrial development	1	2	3	4	5	6

	Very Poor	Poor	Below Average	Above Average	Good	Excellent
t. Welfare programs	1	2	3	4	5	6
u. Availability of financing	1	2	3	4	5	6
v. Supervision of teenagers	1	2	3	4	5	6

E. Churches

1. Do you feel the ministers in your community should be more active in community affairs?

2. Do you think the ministers in your community should take a more active part in pre-marital counseling?

3. Please indicate whether you feel the churches in _____ county have a "very important influence," an "important influence," or whether they have "little influence" on each of the following:

	Very Important Influence	Important Influence	Little Influence
a. Children	_____	_____	_____
b. Teenagers	_____	_____	_____
c. Young unmarried adults	_____	_____	_____
d. Young married people	_____	_____	_____
e. Mature families	_____	_____	_____
f. Older people	_____	_____	_____
g. Community affairs	_____	_____	_____
h. Integrating new members into the community	_____	_____	_____
i. Stimulating community cooperation	_____	_____	_____

4. Do you think it would be a good idea if some of the churches in _____ would consider combining?

5. Listed below are some general problem areas related to churches. We have tried to list problems which have occurred in many communities similar to _____. We would like you to evaluate how these problems apply to your community. Four descriptions of how these problems may relate to your community are listed immediately below. Read them over carefully, then enter in the blank provided in front of each problem the number of the description that best relates each particular problem to your community.

(1) It is not a problem.

(2) It is a problem, but not a serious one.

(3) It is a serious problem.

(4) It is a very serious problem.

a. _____ Adequate opportunities for religious worship for all faiths having groups in the community.

b. _____ Adequate religious education and programs for all age groups of the community.

c. _____ Adequate interdenominational organizations to effectively plan and execute community religious activities.

d. _____ Conflict between churches.

e. _____ Adequate community support of the churches.

f. _____ Conflict between church activities and other community activities.

F. Recreation and Tourism

1. Do you think steps should be taken to preserve _____ county's covered bridges?

2. Do you feel the old fire house in _____ should be preserved as a museum?

3. Should the approaches to _____ be made more attractive to make the city more inviting to outsiders?

4. Do you think a public golf course is needed in _____?

5. If a golf course were available, would you or members of your family make use of it?

6. Is the present _____ swimming pool adequate?

7. Do you think there is a need for a new swimming pool in _____?

8. Are you satisfied with the existing park facilities in the _____ area?

9. Is there a need for a brochure (for local residents and tourists) on points of interest in _____ county?

10. Do you think an effort should be made to restore and mark some of the points of historical interest in _____ county?

11. Camping is more popular today among tourists. Do you feel that the developing of camping sites in _____ and surrounding counties would help the development and growth of the _____ area?

12. Have you or members of your family attended or do you make use of each of the following:

	Yes	No	Don't Know
a. Public library	____	____	____
b. Civic music concert series	____	____	____
c. Community players	____	____	____
d. Travelogue series	____	____	____
e. Art exhibit	____	____	____

13. From the standpoint of attracting tourists, what do you think are the strong points of _____?

_____ a. Well marked historical sites.

_____ b. Good hotels and motels.

_____ c. Good restaurants.

_____ d. Convenient parking.

_____ e. Roadside parks and picnic facilities.

14. Listed below are some problems related to recreation which have occurred in many communities similar to _____. We would like you to evaluate how these problems apply to your community. Four descriptions of how these problems may relate to your community are listed immediately below. Read them over carefully, then enter in the blank provided in front of each problem the number of the description that best relates each particular problem to your community.

(1) It is not a problem.

(2) It is a problem, but not a serious problem.

(3) It is a serious problem.

(4) It is a very serious problem.

a. _____ Adequate recreational opportunities for all age groups.

b. _____ Adequate outdoor recreational facilities.

c. _____ Adequate indoor recreational facilities.

d. _____ Adequate commercial recreational facilities.

e. _____ Recreational board to plan community recreational activities.

f. _____ Conflict between organized recreational activities and other community activities.

g. _____ Adequate support of the community recreational facilities.

G. Government

1. Would you be in favor of consolidating some of the present county government offices if greater efficiency or lower costs would result?

2. Would you be in favor of consolidating two or more county governments if a study by a representative committee found it to be sufficiently economical?

3. Approximately what percent of the property tax dollar do you think goes for the operation of each of the following? (In each case indicate your estimate of the percent of the property tax dollar that goes for each.)

   a. Schools _____
   b. Hospital _____
   c. Roads _____
   d. State institutions _____

4. Would you be in favor of the County Board of Supervisors purchasing voting machines to speed up the tabulation of voting results?

5. Do you feel the present forms of taxation are adequate to continue to support local governmental and public services?

6. Do you feel the present forms of taxation will be adequate to continue to support local governmental and public services five years from now?

H. Public Affairs and Education

1. Would you be willing to participate in neighborhood discussion groups to learn more about:

	Yes	No	Don't Know
a. Your schools	____	____	____
b. Local government	____	____	____
c. Collection and allocation of taxes	____	____	____
d. Farm problems	____	____	____
e. Social and economic changes taking place	____	____	____
f. Civil defense	____	____	____

I. Schools

1. Do you think competitive athletics are being over-emphasized in our schools?

2. Are extra-curricular activities other than athletics consuming too much time in our schools?

3. Is an area vocational trade school (to provide post-high school training in electronics, mechanics, printing, building trades, etc.) needed in the _____ county area?

4. Do you feel that a 2-year public junior college is needed for _____?

5. If such a junior college were available, do you think it should provide vocational training (electronics, mechanics, building trades, etc.) in addition to regular college courses?

6. Do you feel that additional vocational agricultural training (beyond high school) should be offered prospective farmers in _____ county?

7. Do you feel the _____ schools should place additional emphasis on:

	Yes	No	Don't Know
a. Vocational training	_____	_____	_____
b. Education to prepare young people for marriage	_____	_____	_____
c. Physical education and conditioning of students	_____	_____	_____
d. Driver training	_____	_____	_____
e. Educational programs for adults	_____	_____	_____
f. College preparation	_____	_____	_____

8. Should government funds derived from school taxes be used in any part for the assistance of the education of youth in private or church-related, non-public schools?

9. Do you think the _____ High School should offer summer courses?

10. Would you be in favor of lengthening the school year? (The present length of the school year is 180 days.)

11. Are there sufficient numbers of adult education courses being offered in the community at the present time?

12. Does the present adult education program need to be revised to offer different courses?

13. Do you feel there is a need for parents to have more opportunities to meet with school teachers and administrators?

14. Do you feel that teacher salaries in the _____ schools are high enough to attract and hold a good teaching staff?

15. In reference to our present school system, please indicate your opinions by rating each of the following as: Very good, good, adequate, inadequate, or don't know.

	Very Good	Good	Adequate	Inadequate	Don't Know
a. Curriculum	____	____	____	____	____
b. Administration	____	____	____	____	____
c. Facilities	____	____	____	____	____
d. Teachers	____	____	____	____	____
e. Board	____	____	____	____	____
f. Vocational training	____	____	____	____	____
g. Adult education	____	____	____	____	____
h. Guidance counseling	____	____	____	____	____

16. Do you feel that the building facilities of the _____ School District are adequate to meet both present and future needs? (Next 5 years)

17. Listed below are some problem areas related to schools. We have tried to list problems which have occurred in many communities similar to _____. We would like you to evaluate how these problems apply to your community. Four descriptions of how these problems may relate to your community are listed immediately below. Read them over carefully, then enter in the blank provided in front of each problem the number of the description that best relates each particular problem area in the community.

(1) It is not a problem.

(2) It is a problem, but not a serious problem.

(3) It is a serious problem.

(4) It is a very serious problem.

a. _____ Adequacy of school program and facilities to meet community formal and informal educational needs.

b. _____ Conflict between school activities and other community activities.

c. _____ Adequate school organization to effectively plan and execute school program improvements.

d. _____ Adequate community support of school organizations to activate improvement plans into community action in planning improvements of school programs.

J. Youth

1. Do you think there are adequate recreational facilities available to the youth of the community?

	Yes	No	Don't Know
a. Thirteen and under	_____	_____	_____
b. Fourteen and over	_____	_____	_____

2. Do you think the ministers in your community should take a more active part in pre-marital counseling?

3. Do you feel that a curfew for children and teenagers should be enforced in our community?

4. Apart from schools, do you feel there are too many organizational activities for teenagers in the _____ community?

K. Senior Citizens

1. Do you believe there are sufficient recreational and organization activities available for older and retired people in our county?

2. Are the present nursing and custodial homes in the county sufficient to meet the needs of elderly people in the county?

3. Considering the needs of _____ county's people over 60 years of age, would a community retirement home of 50 or more apartments be desirable and used in this community?

4. In regard to the older and retired persons in _____ county, do you feel:

   _____ a. There are adequate recreational and social activities to meet their needs?

   _____ b. There are sufficient nursing and custodial homes in the county to meet their needs?

   _____ c. The opportunity is provided for them to contribute as much as they might to community projects and activities?

5. Do you feel there is a need in _____ for a modern nursing home with registered nurses on duty for bed confined persons who do not necessarily need hospital confinement?

L. Agricultural

1. Which government agricultural program (price supports, acreage controls, etc.) do you favor?

_____ a. Compulsory

_____ b. Voluntary

_____ c. No government program

2. Would you favor state-wide mandatory testing for the control of each of the following:

	Yes	No	Don't Know
a. Brucellosis	_____	_____	_____
b. Tuberculosis	_____	_____	_____
c. Hog cholera	_____	_____	_____

3. Do you feel that rural zoning in _____ county is a good idea?

4. Are you satisfied with the rural zoning that has been accomplished in _____ county?

5. Are you aware of the traveling library facilities that are available to you and your family in the county?

6. Does _____ county need more market outlets for farm products?

	Yes	No	Don't Know
a. Pork	_____	_____	_____
b. Beef	_____	_____	_____
c. Dairy	_____	_____	_____
d. Poultry	_____	_____	_____
e. Grain	_____	_____	_____

7. In _____ county in recent years more than $1,000,000 worth of corn per year is marketed as grain rather than through livestock. If this grain were marketed through livestock, it would greatly increase the farm income of _____ county. What, in your opinion, are the major reasons why some farmers are not feeding their grain but are marketing it directly? (Check all reasons that you think are factors.)

_____ a. Too many part-time farmers (full-time job in town and farm on weekends and evenings) who do not have time for livestock.

_____ b. Livestock takes too much time.

_____ c. Livestock are too restrictive (require operator to be there every day.)

_____ d. Returns are not high enough on livestock to be worth the trouble.

_____ e. Lack of management ability to properly handle livestock.

_____ f. Investment required for livestock is too great.

_____ g. Lack of good markets for livestock.

_____ h. Lack of finances and capital to operate a livestock program.

_____ i. Taxes on livestock.

_____ j. Prices on livestock are too uncertain.

8. Approximately what percent of your livestock do you sell to each of the following:

_____ a. Public auction markets.

_____ b. Packing plants in _____ .

_____ c. Packing plants outside _____ county.

_____ d. Other farmers for breeding purposes.

_____ e. Other packers and markets outside Iowa.

_____ f. Other: What? _____

9. Approximately how many crop acres do you feel it takes in _____ county to have a net income of $5,000 per year (assume strictly cash-grain operation -- no livestock).

10. With modern day machinery, about how many acres do you think a full-time farmer in _____ county can farm without a lot of additional help?

11. Would you favor a rural number and lettering system for the location and identification of fires in the rural areas?

12. Are you satisfied with the rural school bus transportation system?

13. What do you think would increase the understanding between farm people and business people? (List the three things you believe would help most.)

14. Where do you sell most of the following farm products?

Product	Town
a. Dairy products	_____
b. Corn	_____
c. Soybeans	_____
d. Beef	_____
e. Poultry products	_____
f. Hogs	_____

15. If you do not presently use any of the following soil conservation practices on your farm: contouring, strip-cropping, terracing; which of the following reasons apply?

_____ a. Feel there is no benefit derived from these practices.

_____ b. The added inconvenience of going around the hill outweighs the benefits.

_____ c. Have no soil loss on the farm.

_____ d. Neighbors would think I am foolish.

_____ e. Find it hard to make a break from a lifetime of habit.

_____ f. Do not want to change fences.

_____ g. Am thinking of using one or more of these practices in the near future.

16. Do you feel there is sufficient long-term credit (credit for longer than one crop year) available to meet the needs of the farmers in the county?

M. Personal and Social Characteristics

1. Is the homemaker or wife in your household employed outside the home?

2. In which of the following brackets would your net family income before taxes be classified?

_____ a. Less than $2,000.

_____ b. $2,000 - $3,999.

_____ c. $4,000 - $5,999.

_____ d. $6,000 - $9,999.

_____ e. Over $10,000.

3. What is the age of the head of your household?

_____ a. Under 25.

_____ b. 25-34 years of age.

_____ c. 35-44 years of age.

_____ d. 45-54 years of age.

_____ e. 55-64 years of age.

_____ f. 65 and over.

4. How many people are living in your home at the present time?

_____ Adults

_____ Children, 14-21

_____ Children, under 14

5. What radio station do you usually listen to for news coverage?

6. What television station do you watch for news coverage?

7. Which of the following newspapers do you subscribe to and/or read regularly?

8. Is anyone in your family (living at home) presently driving to work outside _____. Which town? _____.

9. What was the highest grade completed by the head of the household?

   _____ a. 8th grade or less.
   _____ b. Some high school.
   _____ c. High school graduate.
   _____ d. Some college.
   _____ e. College graduate.

10. How long have you lived in this community?

N. Sample Labor Survey Questionnaire

This survey is being made in an effort to obtain information about the labor supply in X County. By completing this survey, it will be possible to indicate to industrailists considering location in our county that we do have the quantity and quality of labor the industry may need. This will be an important factor in helping to attract industry to the county. Your name and the information you provide will be maintained on file by the X Industrial Corporation and will be made available only to prospective industries. Your cooperation in completing this questionnaire is appreciated.

- ALL INFORMATION IS CONFIDENTIAL -

1. Name (print) _____
   (First) (Middle) (Last)

2. Address _____

3. Phone _____

4. Sex _____ Male _____ Female

5. Date of birth _____

6. Marital status:
   Single _____
   Married _____
   Divorced _____
   Separated _____

   Number of children _____

7. Education: (Circle last year completed)

Grammar school	High School	College	Trade School
1 2 3 4 5 6 7 8	1 2 3 4	1 2 3 4 5 6 7	1 2 3 4

Principal course of study:

High school _____

College or trade school _____

8. Military status:

_____ No military service.

_____ Veteran - Branch _____

(If veteran) Military speciality if any _____

_____

9. Employment history: (Begin with present or last employment. Include military service.)

Name of Employer	Address	Type of Work	From	To	Wages	Reason For Leaving
1.						
2.						
3.						
4.						

10. Please indicate particular skills or abilities (welder, mechanic, etc.) you possess or particular types of machinery or equipment on which you have had experience.

_____

_____

_____

_____

11. Are you now and have you been in good health during the past twelve months?

_____ Yes _____ No If not, explain: _____

_____

You have indicated you would or might be interested in work in a new industry, should one locate in _____ (name of town). The following questions are concerned with your employment interests.

12. What type of work would you be most interested in?

1st choice _____

2nd choice _____

13. Would you accept part-time or seasonal employment?

_____ Yes _____ No

14. How much pay per week would you have to receive in order to accept a full-time (40 hour) job in a new industry in _____?
(name of town)

_____$30 - $39.99
_____$40 - $49.99
_____$50 - $59.99
_____$60 - $69.99
_____$70 - $79.99
_____$80 - $89.99
_____$90 - $99.99
_____$100-$119.99
_____$120-$149.99
_____$150 or over

15. Which of the following conditions would be necessary in order for you to take a job in a new industry in _____?
(name of town)

_____ No special conditions necessary.

_____ A certain kind of job.

_____ Special hours of work.

_____ Slack season in my regular work.

_____ Someone to help with housework.

_____ Someone to help care for children or dependent adults.

_____ Other reasons (specify).

_____

_____

16. How far would you be willing to drive (daily) to accept employment in a new industry?

_____ Miles.

THANK YOU FOR YOUR COOPERATION!

O. Sample Retail Trade Questionnaire

RIGHT HERE CHAMBER OF COMMERCE

RIGHT HERE, IOWA

The businessmen of the Right Here community have requested the Chamber of Commerce to assist in making a trade area survey of Right Here County and surrounding areas. The purposes of this analysis are:

1. To outline the area served by Right Here businessmen.
2. To determine how you feel about the performance of these businesses.
3. To suggest means of providing better shopping services for you.

This information will be used in a management program for businessmen in Right Here and in surrounding communities. Since there is only a select small sample, it is important that you give us the benefit of your thinking. Your cooperation will help the Right Here community improve its service to you.

Most of the questions can be answered with a check mark or circle. It is important that the wife or husband complete the questions. We would prefer that the husband and wife provide the information jointly.

You may complete the questionnaire at your convenience. I will personally call back to pick it up on _____. Please do not sign the questionnaire.

Thank you for your help!

Sincerely,

John Smith
President,
Right Here Chamber of Commerce

Please check the town where you buy the most of the following goods and the reasons you buy where you do. If two towns or two reasons are of almost equal importance, please rank them 1 and 2.

	TOWNS								REASONS								
	A	B	C	D	E	F	Mail Order	Other	Price	Service	Convenience	Always Buy There	Quality of Product	Brand	Wide Selection	Other
Groceries																
Women's Clothing																
Children's Clothing																
Men's Clothing																
Furniture																
Major Appliances																
Hardware																
New or Used Automobiles																
Drugs																

Please check the town where you buy most of the following services and the reasons you buy where you do. If two towns or two reasons are of almost equal importance, please rank them 1 and 2.

	TOWNS								REASONS						
	A	B	C	D	E	F	G	Other	Lower Cost	Convenience	Friendliness	Personal Service	Adequacy of Service	Other
Medical Care														
Dental Care														
Beauty Salon, Barber, etc.														
Lawyer														
Automobile Service														
Banking														
Household & Appliance Repairs														
Dry Cleaning														

Please check the town where you buy the most of the following farm supplies and services and the reasons why you buy where you do. If two towns or two reasons are of about equal importance, please rank them 1 and 2.

	TOWNS								REASONS								
	A	B	C	D	E	F	G	Other	Advertisements	Wider Selection	Convenience	Better on-the-farm service	Technical Advice	Lower Cost	Quality	Other
Feed																
Seed																
Fertilizer & Chemicals																
Gasoline & Oil																
Machinery Repair																
Farm Machinery																
Lumber & Building Supplies																
Veterinary Services																

Please check the towns where you sell the most of the following farm products and the reasons you sell where you do. If two towns or two reasons are of about equal importance, please rank them 1 and 2.

	TOWNS								REASONS						
	A	B	C	D	E	F	G	Other	Closer to Home	Better Grading	Higher Prices	Lower Charges	Confidence in Buyer	Honest Weights	Other
Cattle															
Hogs															
Grain															
Produce															

How many are living in your home at the present time?

a. Number of adults _____.

b. Number 15-19 years of age _____.

c. Number under 15 years of age _____.

Is anyone in your family (living at home) presently driving to work outside Right Here?

_____ Yes

_____ No

Which town? _____

In which of the following brackets would your annual family income be classified?

Wage earners -- check take-home pay.

Farmers -- check net income after taxes.

Under $1,000 _____

$1,000 - $2,999 _____

$3,000 - $4,999 _____

$5,000 - $7,999 _____

$8,000 and over _____

How long have you lived in this community? _____ Years

What was the highest grade completed by the head of the household?

_____ 8th grade or less

_____ High school graduate

_____ Some college

_____ College graduate

Circle the age group of the head of the household.

20-29 30-39 40-49 50-64 65 and over

APPENDIX B

Statistical Appendix

This section illustrates some of the statistical tools that you can use in analyzing community surveys. Each of these tools adds information which can be used to evaluate the results of the survey.

Analyzing the Results

The data collected from surveys can be classified into two basic types. These are enumeration data and measurement data. Examples of measurement data include height, age, number of acres per farm, and total income. These measurements are continuous numerical data. Enumeration data, on the other hand, indicate that an individual does or does not possess a specific quality. For example, an individual may be in favor of a school bond issue, against the issue, or undecided; an individual either buys most of his groceries in town X or does not buy most of his groceries in town X. The questionnaires used on community surveys generally require answers of both types. Different statistical tools are needed to analyze each type of data. A discussion of these tools follows:

Measurement Data

Averages: The most common statistical tool used in analyzing measurement data is the simple average. The average is computed by adding the measurement values and dividing by the number of values. Symbolically, the method of computing the average is:

$$\bar{X} = \frac{\Sigma X}{n}$$

where $\bar{X}$ = the average.

X = the individual values.

Σ = summation of the X's.

n = the number of values.

Confidence Intervals: A question that arises in any survey is, "How precise are these results?" That is, "If I were to do the survey again, would the results be similar?" Obviously, the results would not be likely to be exactly the same since, if you were to do the survey over again, you would almost certainly not get exactly the same households in the second sample that you had in the first sample; these differences, which can be attributed to the fact that you are examining only a sample of the population, are called "sampling error." In addition, in any survey, errors arise in the collection and processing of the data which have nothing to do with the fact that you are sampling. These latter errors which would occur even if you were to take a complete census, are called, "nonsampling errors."

The nonsampling error can be kept to a reasonable level through careful work. In simple random sampling such as we have been discussing, sampling error can be reduced by increasing the sample size and, in fact, can be eliminated entirely by taking a complete census. More important than the elimination of sampling error, however, is the fact that <u>if the sample has been selected according to statistical principles</u>, the magnitude of the sampling error can be measured and, thus, the precision of results of the survey evaluated. One such measure is called the confidence interval.

When you compute an average according to the preceding section, you have no way of knowing how closely this figure corresponds to the population figure. However, by computing a confidence interval, you can determine a range of values around this average which has a known chance of including the population figure. The rules for computing such an interval are given below. An interval computed in this manner has a 95 percent confidence level. This means that 95 times out of 100, such an interval would cover the population figure.

The confidence interval is computed in the following manner:

1. Compute the average from the sample data.

2. Compute the standard error of the average. The formula for the standard error is:

$$s = \sqrt{\frac{\Sigma(X)^2 - \frac{(\Sigma X)^2}{n}}{n\,(n-1)}}$$

where s = the standard error.

$(X)^2$ = the square of an individual value. The squared values of each of the individual cases are then totaled to give $\Sigma(X)^2$.

ΣX = the sum of all the individual values. This sum is then squared to give $(\Sigma X)^2$.

$\sqrt{\ }$ = square root.

n = number of questionnaires.

The steps in computing the standard error are:

a. Square each X and add all the answers.

b. Square the sum of the X's and divide by n.

c. Subtract the answer in b from the answer in a and divide the remainder by n(n - 1) (where n-1 is equal to 1 less than n).

d. Take the square root of the answer obtained in c.

3. The formula for the confidence interval is:

$$CI = \bar{X} \pm 2 \text{ times } (s)$$

where $\bar{X}$ is the simple average, $\frac{\Sigma X}{n}$.

An example will illustrate how to compute the confidence interval. Assume we have the ages of a sample of six people. The individual ages are:

40
25
53
66
30
50

The average age (44) is computed by dividing the total (264) by number of people in the sample (6).

The standard error in this sample is computed as follows:

Step 1. Square all the ages and add all the answers.

$(40)^2 = 1{,}600$
$(25)^2 = 625$
$(53)^2 = 2{,}809$
$(66)^2 = 4{,}356$
$(30)^2 = 900$
$(50)^2 = 2{,}500$
$\Sigma(X)^2 \quad 12{,}790$

Step 2. Square the sum of the X's and divide by n.

$$\frac{(264)^2}{6} = \frac{69{,}696}{6} = 11{,}616$$

Step 3. Subtract the answer in Step 2 from the answer in Step 1 and divide the remainder by n(n - 1).

$$\frac{12{,}790 - 11{,}616}{6 \text{ times } (6 - 1)} = \frac{1{,}174}{30} = 39.13$$

Step 4. Take the square root of the answer in Step 3.

$$s = \sqrt{39.13} = 6.256$$

The confidence interval is computed by adding and subtracting two times s to the average.

44 + (2) times 6.256 = 56.5
44 - (2) times 6.256 = 31.5

The upper boundary of the confidence interval is the average plus 2 times the standard error. In our example, this upper boundare would be 56.5 years of age. The lower boundary is the average minus 2 times the standard error. In our example, this lower boundary would be 31.5 years of age. The interpretation of this confidence interval is that we can be 95 percent confident that the true answer falls between 31.5 years and 56.5 years. The true answer, of course, is the one we should have obtained if we had collected accurate information from every household in the community or trade area, rather than from our sample of n households. A confidence interval should be computed for each important average in the study.

In a typical survey, we might have 300 households rather than six. Suppose the $\Sigma(X)^2$, (ΣX) and n from our sample of six are 50 times greater in a sample of 300. The new n(n - 1) equals 50 times 49. Each term in the numerator of the standard deviation would be multiplied by 50 while the denominator is multiplied by nearly 2500. Hence, the whole term under the $\sqrt{\ }$ is reduced to about 1/50 of its former size when the square root is taken. The standard error for n = 300 is only about $1/\sqrt{50}$ or about 1/7 of that for n = 6. Hence, by increasing the sample size, you reduce the size of the confidence interval and make your results more precise.

Enumeration Data

Percentages: The most common statistical tool for analyzing enumeration data is the percentage. The percentage is the portion of the sample that possesses a specific quality or characteristic. The percentage is computed by dividing the number that possesses a specific quality by the total number in the sample. Symbolically, the method of computing the percentages is:

$$\bar{P} = \frac{X}{n} \text{ times } 100$$

where $\bar{P}$ = the percentage

X = the number possessing the quality

n = the number of questionnaires

Confidence Intervals: A confidence interval can and should be computed for each important percentage in the study. The formula for the confidence interval for percentages is:

$$CI = p \pm 2 \text{ times } (s)$$

$$\text{where } s = \sqrt{\left(1 - \frac{n}{N}\right) \text{ times } \frac{(p)\ (q)}{n}}$$

p = proportion of the sample possessing the quality.

q = proportion of the sample not possessing the quality.

n = number in the sample.

N = total number of households in the area being surveyed.

The procedure for computing the standard error (s) of enumeration data is to multiply the proportion that possesses the quality by the proportion that does not possess the quality and divide by the number in the sample. The standard error of the percentage is the square root of this answer. The confidence interval is then computed in the same manner as for measurement data.

An example will illustrate how to compute the confidence interval for enumeration data. From a sample of 200 households, assume that 120 households do most of their shopping at "Right Here" and 80 households do most of their shopping elsewhere. The proportion of the people shopping in "Right Here" is 120/200 or .60. The proportion of households which do not do most of their shopping in "Right Here" is 80/200 or .40. The standard error in this example is computed as follows:

$$s = \sqrt{\left(1 - \frac{200}{400}\right) \text{ times } \frac{(.60)\ (.40)}{200}}$$

$$= \sqrt{\left(\frac{1}{2}\right) \text{ times } \left(\frac{.2400}{200}\right)}$$

$$= \sqrt{.0006}$$

$$= .0245$$

The confidence interval is computed as follows:

$$.60 + (2)\ .0245 = .649$$

$$.60 - (2)\ .0245 = .551$$

The interpretation of this confidence interval is that we can be 95% confident that the true proportion of the households doing most of their shopping in "Right Here" lies between .551 and .649.

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